

**Class 2 Permit Modification Request**

**Waste Characterization Updates and Other Process Improvements**

**Add U134 as a New Hazardous Waste Number**

**Characterizing Repackaged homogenous Solids as Retrievably Stored Waste with Regard to Solids Sampling**

**Classified Information Recordkeeping and Audit Requirements**

**Addition of HalfPACTs**

**Use of Radiography for newly Generated Waste**

**Waste Isolation Pilot Plant  
Carlsbad, New Mexico**

**WIPP HWFP #NM4890139088-TSDF**

## **Transmittal Letter**

|



Department of Energy  
Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221

**JUN 27 2002**

Mr. Steve Zappe, Project Leader (WIPP)  
Hazardous Waste Permits Program  
Hazardous Waste Bureau  
New Mexico Environmental Department  
2905 E. Rodeo Park Dr., Bldg. 1  
Santa Fe, New Mexico 87505-6303

RE: Request for Permit Modification to the Hazardous Waste Facility Permit, Permit Number NM4890139088-TSDF, Waste Characterization Updates and other Process Improvements

Dear Mr. Zappe:

The purpose of this letter is to submit a request for a Class 2 permit modification to the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), Number: NM4890139088-TSDF. This request is being submitted by the U.S. Department of Energy, Carlsbad Field Office (CBFO) and Westinghouse TRU Solutions LLC. The proposed changes in this Permit Modification Request (PMR) do not compromise worker safety, human health, or the environment. The modification includes the following items:

- Item 1: Add U134 as a New Hazardous Waste Number;
- Item 2: Characterizing Repackaged Homogeneous Solids as Retrievably Stored Waste with Regard to Solids Sampling (Control Charting);
- Item 3: Classified Information Recordkeeping and Audit Requirements; and
- Item 4: Addition of HalfPACTs; and
- Item 5: Use of Radiography for Newly Generated Waste (Visual Verification).

The permittees are submitting this PMR in accordance with 20.4.1.900 NMAC incorporating 40 CFR 270.42(b) for Class 2 permit modifications.

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.*

Sincerely,

Dr. Inés Triay, CBFO Manager  
U.S. Department of Energy

J. L. Lee, General Manager  
Westinghouse TRU Solutions, LLC

Enclosure

Mr. Steve Zappe

-2-

cc: w/enclosure  
C. Walker, Techlaw

cc: w/o enclosure  
J. Bearzi, NMED  
J. Kieling, NMED

## Table of Contents

Transmittal Letter	
Table of Contents	i
Attachment A	A-1
Table 1. Class 2 Hazardous Waste Facility Permit Modification	A-2
Acronyms and Abbreviations	A-4
Overview of the Permit Modification Request	A-5
Item 1 Add Additional Waste Number	A-12
Description	A-12
Basis	A-12
Discussion	A-13
Proposed Revised Permit Text	A-15
Acronyms and Abbreviations	A-20
Overview of the Permit Modification Request	A-21
Item 2 Characterizing Repackaged Homogenous Solids as Retrievably Stored Waste with Regard to Solids Sampling	A-29
Description	A-29
Basis	A-29
Discussion	A-29
Proposed Revised Permit Text	A-33
Acronyms and Abbreviations	A-40
Overview of the Permit Modification Request	A-41
Item 3 Recordkeeping and Audit Requirements for Classified Information	A-48
Description	A-48
Basis	A-48
Discussion	A-48
Proposed Revised Permit Text	A-49
Acronyms and Abbreviations	A-54
Overview of the Permit Modification Request	A-56
Item 4 Addition of HalfPACT	A-62
Description	A-62
Basis	A-62
Discussion	A-62
Proposed Revised Permit Text	A-63

Acronyms and Abbreviations .....	A-94
Overview of the Permit Modification Request .....	A-95
Item 5 Use of Radiography for Newly Generated Waste .....	A-102
Description .....	A-102
Basis .....	A-102
Discussion .....	A-102
Proposed Revised Permit Text .....	A-104
Attachment B .....	B-1
Attachment C .....	C-1

**Attachment A**

**Description of the Class 2 Permit Modification Request**

**Table 1. Class 2 Hazardous Waste Facility Permit Modification**

<b>No.</b>	<b>Affected Permit Section</b>	<b>Item</b>	<b>Category</b>	<b>Attachment 1 Page #</b>
1	a.1. Module II b.1. Attach. B3 c.1. Attach. O, Part A Application	Addition of New Hazardous Waste Number	F.3.b	A-12
2	a.1. Module II b.1. Attach. B c.1. Attach. B1 d.1. Attach. B2 e.1. Attach. B6	Characterizing Repackaged Homogenous Solids as Retrievably Stored Waste with Regard to Solids Sampling	B.1.d	A-29
3	a.1. Module II b.1. Attach. B c.1. Attach. B3 d.1. Attach. B6	Incorporate recordkeeping and audit requirements for classified information.	B.2.b	A-48
4	a.1. Module I b.1. Module III c.1. Attach. A d.1. Attach. B e.1. Attach. C f.1. Attach. D g.1. Attach. E h.1. Attach. F i.1. Attach. G j.1. Attach. I k.1. Attach. J1 l.1. Attach. M1 m.1. Attach. M2 n.1. Attach. O	Addition of HalfPACT	F.2.a	A-62
5	a.1. Attach. B b.1. Attach. B4 c.1. Attach. B6	Use of Radiography for Newly Generated Waste	B.1.d	A-102



**Item 1**

**Addition of New Mexico Hazardous Waste Number**

## **Acronyms and Abbreviations**

AK	Acceptable Knowledge
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
DOE	Department of Energy
DQO	Data Quality Objective
EPA	United States Environmental Protection Agency
HF	Hydrofluoric Acid
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PMR	Permit Modification Request
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
SAE	Society of Automotive Engineers
TIC	Tentatively Identified Compound
TRU	Transuranic
TRUCON	Transuranic Content
TSDF	Treatment, Storage and Disposal Facility
TWBIR	TRU Waste Baseline Inventory Report
UCL90	Upper 90 Percent Confidence Level
WAC	Waste Acceptance Criteria
WIPP	Waste Isolation Pilot Plant
WTS	Westinghouse TRU Solutions LLC

## Overview of the Permit Modification Request

This PMR is being submitted by the U.S. Department of Energy (**DOE**), Carlsbad Field Office (**CBFO**) and Westinghouse TRU Solutions LLC (**WTS**), collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1 (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating 40 Code of Federal Regulations (**CFR**) §270.42(b)). This PMR is necessary to allow generator/storage sites the ability to ship non-corrosive waste which carries the U134 hazardous waste number to WIPP for disposal. This change does not reduce the ability of the Permittees to provide continued protection to human health or the environment.

The requested modification to the WIPP HWFP and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP HWFP has been identified using a double underline and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP HWFP requirement, Permit Condition I.B.1 for submission of this Class 2 PMR.

1. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)), requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

This modification contains a single proposed change that will allow the addition of the hazardous waste number U134. The exact, proposed text changes are found in Attachment A of this PMR, while changes to the Part A application are found in Attachment B.

2. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.**

The proposed modification is classified as a Class 2 permit modification.

3. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.**

The Idaho National Engineering and Environmental Laboratory (**INEEL**) has requested the addition of a hazardous waste number to the existing WIPP HWFP. This new number is required to allow disposal of transuranic (**TRU**) mixed waste with the hazardous waste number U134 at WIPP.

4. **20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the WIPP HWFP that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000, incorporating the CFR, Title 40 (40 CFR Parts 264 and 270). 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. 40 CFR §270.23 is applicable to the WIPP Hazardous Waste Disposal Units (**HWDUs**). This modification does not impact the conditions associated with the HWDUs.

5. **20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Module I.F of the WIPP HWFP.

## Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A	✓	
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B	✓	
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment B	✓	
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D		✓
	§264.174	Container inspections	Attachment D		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment F		✓
	§264.51	Contingency plan design and implementation	Attachment F		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F		✓
	§264.53	Contingency plan copies	Attachment F		✓
	§264.54	Contingency plan amendment	Attachment F		✓
	§264.55	Emergency coordinator	Attachment F		✓
	§264.56	Emergency procedures	Attachment F		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		✓
§270.14(b)(8) (i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E		✓
§270.14(b)(8) (ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E		✓
§270.14(b)(8) (iii)		Prevention of contamination of water supplies	Attachment E		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(8) (iv)		Mitigation of effects of equipment failure and power outages	Attachment E		✓
§270.14(b)(8) (v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		✓
§270.14(b)(8) (vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Attachment E		✓
	§264.31	Design and operation of facility	Attachment E		✓
	§264.32	Required equipment	Attachment E Attachment F		✓
	§264.33	Testing and maintenance of equipment	Attachment D		✓
	§264.34	Access to communication/alarm system	Attachment E		✓
	§264.35	Required aisle space	Attachment E		✓
	§264.37	Arrangements with local authorities	Attachment F		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		✓
§270.14(b) (10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G		✓
§270.14(b) (11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b) (11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b) (12)	§264.16(a-e)	Personnel training program	Attachment H		✓
§270.14(b) (13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		✓
§270.14(b)(13)	§264.112(a)(b)	Written content of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment I		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment I		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment I		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E	✓	

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		✓
§270.15	§264 Subpart I	Containers	Attachment M1		✓
	§264.171	Condition of containers	Attachment M1		✓
	§264.172	Compatibility of waste with containers	Attachment M1		✓
	§264.173	Management of containers	Attachment M1		✓
	§264.174	Inspections	Attachment D Attachment M1		✓
§270.15(a)	§264.175	Containment systems	Attachment M1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Attachment E Permit Module II		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Attachment E Permit Module II		✓
	§264.178	Closure	Attachment I		✓
§270.15(e)	§264.179	Air emission standards	Attachment E Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment M2		✓
§270.23(a)	§264.601	Detailed unit description	Attachment M2		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		✓



Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment M2 Attachment N		✓
	§264.603	Post-closure care	Attachment J Attachment J1		✓
	264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B		✓

## Item 1

### Add Additional Waste Number

#### Description:

Add an additional hazardous waste number (U134, hydrofluoric acid) to the existing WIPP HWFP. This additional number will not require any additional or different management practices at the WIPP facility but will require sufficient testing or acceptable knowledge (**AK**) at the generator/storage site to ensure that the waste meets the Treatment, Storage, and Disposal Facility (**TSDF**) Waste Acceptance Criteria (**WAC**) as currently specified in the WIPP HWFP.

#### Basis:

The INEEL has requested the addition of a hazardous waste number to the existing WIPP HWFP. This additional number is required to allow disposal of mixed waste with the U134 hazardous waste number at WIPP.

The Permittees previously submitted a request to New Mexico Environment Department (**NMED**) to add the U134 hazardous waste number. NMED rejected this request in a letter dated July 6, 2001. NMED later stated that there was insufficient information supplied with the request to ensure that any waste which carried the U134 hazardous waste number had been sufficiently characterized to show that the waste met the WIPP TSDF-WAC for compatibility.

Waste assigned this waste number will not exhibit the characteristic of corrosivity. In Appendix C1 of the WIPP HWFP Application, compatibility was assessed using the document entitled *A Method for Determining the Compatibility of Hazardous Wastes*<sup>2</sup>. This report indicated that hydrofluoric acid is classified into Reactivity Group Numbers 1 and 15. Reactivity Group Number 15 was evaluated within the application. Reactivity Group Number 1 no longer applies since the characteristic of corrosivity no longer exists.

Because the hydrofluoric acid has been complexed/neutralized and is no longer detectable in the waste stream and since a sufficient testing or AK of the waste will be made prior to shipment, compatibility is not an issue as demonstrated by the compatibility analysis study shown in Appendix C1 of the WIPP permit application<sup>1</sup>. The compatibility analysis utilizes an approach described in the U.S. Environmental Protection Agency Document, *A Method for Determining the Compatibility of Hazardous Wastes*<sup>2</sup>. This study failed to identify any compatibility issues with hydrofluoric acid waste streams from the INEEL evaluated in the Appendix C1 study as shown below:

---

<sup>1</sup> "Chemical Compatibility Analysis of Waste Forms and Container Materials", WIPP Resource Conservation and Recovery Act Part B Permit Application, Appendix C1, DOE/WIPP 91-005, Revision 6

<sup>2</sup> Hatayama, H.K., J.J. Chen, E.R. deVera, R.D. Stephens, and D.L. Storm, "A Method For Determining the Compatibility of Hazardous Waste", April, 1980, EPA 600/2-80-076, U.S. Environmental Protection Agency, Cincinnati, Ohio

...interactions between compounds present in trace quantities (<1 percent by weight) and compounds present in concentrations  $\leq 1$  percent by weight do not pose an incompatibility problem for the following reasons:...

- The waste is either solidified and immobilized (solidified materials) or present in bulk form as a solid (solid materials). In almost all cases, any possible reactions take place before the waste is generated in its final form....

All potential incompatibilities between trace, minor, and dominant compounds have been analyzed on a case-by-case basis for each waste stream reported in Table C-2 (Chapter C). Some chemicals listed as being present in the waste have reacted prior to placement in a waste container. For example, a site listing a caustic (Group 10) and an acid (Group 1) in its waste has only the neutralized product present in an immobilized form. Further reactions of this type do not occur once the waste is neutralized in its final form. An additional constraint on the chemicals and materials that can be present within each waste stream code is their gas generation potential due to radiolysis.

The addition of hazardous waste code U134 will not require any additional or different management practices from those currently in place at the WIPP facility. Furthermore, the addition of this number will not adversely impact the performance of the waste repository and its ability to protect human health or the environment.

## **Discussion:**

The addition of the U134 hazardous waste number is necessary for disposal of INEEL waste from operations, maintenance, and construction activities that carries the U134 hazardous waste number. INEEL currently has approximately 100 cubic meters of transuranic debris (such as personal protective equipment (**PPE**), analytical tools, clothing, equipment, decontamination media, contaminated job wastes, and High Efficiency Particulate Air filters) contaminated with waste that has been assigned the U134 code due to the Resource Conservation and Recovery Act (**RCRA**) mixture and derived from rules.

### **Hazardous Waste Number**

U134 is a listed hazardous waste number for unused or off-specification hydrofluoric acid (**HF**). It is necessary that this hazardous waste number be assigned to waste at the Idaho Nuclear Technology and Engineering Center (**INTEC**) due to the past practice in the analytical lab of discarding the unused portion of samples collected to verify the quality of HF received in tanker trucks. The total volume of the unused portion of the samples was approximately 2.5 liters of HF. Laboratory personnel neutralized and complexed the HF with excess aluminum nitrate to form a non-corrosive aluminum fluoride complex in a nitric acid matrix and discharged the mixture into the liquid waste storage tanks. Debris associated with this process will also carry the U134 number.

The RCRA derived from rule, as specified in 20.4.1.200 NMAC (incorporating 40 CFR §261.3(c)(2)(i)), requires that any waste that is derived from the treatment of a listed waste is also a listed waste. Even though the concentration of hydrofluoric acid is below detectable limits and even though the toxicity and corrosivity characteristics are no longer

applicable to this waste stream, the U134 hazardous waste number must be assigned to all waste, waste residues, contaminated equipment, and debris associated with the waste.

The WIPP HWFP also requires that treated waste must retain the original listed hazardous waste numbers that applied to the original untreated waste. Section B-3d of the WIPP HWFP states that "Treated waste shall be considered newly generated waste, and shall retain the original waste stream's listed hazardous waste code designation."

### **Waste Form**

Debris waste from INTEC will meet the WAC for WIPP. The specific treatment for the waste will comply with the current WIPP permit and associated WAC. The final packaged waste will not be corrosive as defined by 20.4.1.200 NMAC (incorporating 40 CFR §261.22) because the INEEL will be required to show through acceptable knowledge or testing and analysis (visual inspection or similar testing) that the debris waste form does not contain liquid waste. Information will be placed in the Characterization Information Summary (Section B3-12b(1)) to ensure that this requirement is met and that the final waste form meets the WIPP TSDF-WAC.

Corrosivity is defined by the NMED in 20.4.1. 200 NMAC (incorporating 40 CFR §261.22) as follows: "It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method....."

The WIPP HWFP (Section B-3c) requires that 100 percent of all containers undergo radiography or visual examination to verify that the TSDF-WAC and the WIPP HWFP prohibitions on liquids are met. Thus, the waste carrying the U134 hazardous waste number cannot meet the regulatory definition of a corrosive material, because the definition of corrosivity requires that the material being examined is liquid. Because all waste containers undergo radiography or visual examination, to verify the absence of liquid waste, no corrosive waste will be shipped to the WIPP facility.

**Proposed Revised Permit Text:**

a. 1. Module II.C.4

<b>Table II.C.4 - Permitted TRU Mixed Wastes</b>		
<b>EPA Hazardous Waste Code</b>	<b>Hazardous Waste</b>	<b>Chemical Abstract Number</b>
F001	<u>Spent halogenated solvents:</u> Tetrachloroethylene Trichloroethylene Methylene chloride 1,1,1-Trichloroethane Carbon tetrachloride Chlorinated fluorocarbons	127-18-4 79-01-6 75-09-2 71-55-6 56-23-5 NA
F002	<u>Spent halogenated solvents:</u> Tetrachloroethylene Methylene chloride Trichloroethylene 1,1,1-Trichloroethane Chlorobenzene 1,1,2-Trichloro-1,2,2-trifluoroethane Ortho-dichlorobenzene Trichlorofluoromethane 1,1,2-Trichloroethane	127-18-4 75-09-2 79-01-6 71-55-6 108-90-7 76-13-1  95-50-1 75-69-4 79-00-5
F003	<u>Spent non-halogenated solvents:</u> Xylene Acetone Ethyl acetate Ethyl benzene Ethyl ether Methyl isobutyl ketone n-Butyl alcohol Cyclohexanone Methanol	1330-20-7 67-64-1 141-78-6 100-41-4 60-29-7 108-10-1 71-36-3 108-94-1 67-56-1
F004	<u>Spent non-halogenated solvents:</u> Cresols and cresylic acid Nitrobenzene	1319-77-3 98-95-3
F005	<u>Spent non-halogenated solvents:</u> Toluene Methyl ethyl ketone Carbon disulfide Isobutanol Pyridine Benzene 2-Ethoxyethanol 2-Nitropropane	108-88-3 78-93-3 75-15-0 78-83-1 110-86-1 71-43-2 110-80-5 79-46-9

Table II.C.4 - Permitted TRU Mixed Wastes		
EPA Hazardous Waste Code	Hazardous Waste	Chemical Abstract Number
F006	Wastewater treatment sludges from electroplating operations: Cadmium Chromium Cyanide Lead Nickel Silver	7440-43-9 7440-47-3 57-12-5 7439-92-1 7440-02-0 7440-22-4
F007	Spent cyanide plating bath solutions from electroplating operations: See F006	
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process: See F006	
D004	Arsenic	7440-38-2
D005	Barium	7440-39-3
D006	Cadmium	7440-43-9
D007	Chromium	7440-47-3
D008	Lead	7439-92-1
D009	Mercury	7439-97-6
D010	Selenium	7782-49-2
D011	Silver	7440-22-4
D018	Benzene	71-43-2
D019	Carbon Tetrachloride	56-23-5
D021	Chlorobenzene	108-90-7
D022	Chloroform	67-66-3
D026	Cresol	1319-77-3
D027	1,4-Dichlorobenzene	106-46-7
D028	1,2-Dichloroethane	107-06-2
D029	1,1-Dichloroethylene	75-35-4
D030	2,4-Dinitrotoluene	121-14-2
D032	Hexachlorobenzene	118-74-1
D034	Hexachloroethane	67-72-1
D035	Methyl ethyl ketone	78-93-3
D036	Nitrobenzene	98-95-3
D037	Pentachlorophenol	87-86-5
D038	Pyridine	110-86-1
D039	Tetrachloroethylene	127-18-4

Table II.C.4 - Permitted TRU Mixed Wastes		
EPA Hazardous Waste Code	Hazardous Waste	Chemical Abstract Number
D040	Trichloroethylene	79-01-6
D043	Vinyl chloride	75-01-4
P015	Beryllium powder	7440-41-7
P120	Vanadium Pentoxide	1314-62-1
U002	Acetone	67-64-1
U019	Benzene	71-43-2
U037	Chlorobenzene	108-90-7
U043	Vinyl Chloride	75-01-4
U044	Chloroform	67-66-3
U052	Cresol	1319-77-3
U070	1,2-Dichlorobenzene	95-50-1
U072	1,4-Dichlorobenzene	106-46-7
U078	1,1-Dichloroethylene	75-35-4
U079	1,2-Dichloroethylene	156-60-5
U105	2,4-Dinitrotoluene	121-14-2
U122	Formaldehyde	50-00-0
U133	Hydrazine	302-01-2
U134	Hydrofluoric Acid	7664-39-3
U151	Mercury	7439-97-6
U154	Methanol	67-56-1
U159	Methyl Ethyl Ketone	78-93-3
U196	Pyridine	110-86-1
U209	1,1,2,2-Tetrachloroethane	79-34-5
U210	Tetrachloroethylene	127-18-4
U220	Toluene	108-88-3
U226	1,1,1-Trichloroethane	71-55-6
U228	Trichloroethylene	79-01-6
U239	Xylene	1330-20-7

b.1. Attachment B3, Section B3-12b(1)Waste Stream Profile Form and Characterization Information Summary

The Characterization Information Summary includes the following elements:

1. Data reconciliation with DQOs
2. Cross-reference of container identification numbers to each Batch Data Report

3. Headspace gas summary data listing the identification numbers of samples used in the statistical reduction, the maximum, mean, standard deviation,  $UCL_{90}$ , RTL, and associated EPA hazardous waste codes that must be applied to the waste stream.
4. TIC listing and evaluation, and verification that AK was confirmed.
5. RTR and VE summary to document prohibited items are not present and to confirm AK.
6. AK summary including waste stream name, waste stream number, point of generation, waste stream volume, generation dates, TRUCON codes, TWBIR information, generating processes, RCRA determinations, and radionuclide information.
7. Certification through acceptable knowledge or testing and/or analysis that any waste assigned the hazardous waste number of U134 (hydrofluoric acid) no longer exhibits the characteristic of corrosivity. This is confirmed by assuring that no liquid waste is present.

After approval of a Waste Stream Profile Form and the Associated Characterization Information Summary by the Permittees, the generator/storage site are required to maintain a cross reference of container identification numbers to each Batch Data Report.

#### c.1. Attachment O, Part A Application

A revised Part A Application is included in Attachment B. [Note: A signed copy of the revised Part A Permit Application will be provided to NMED following approval of the PMR.]



**Item 2**

**Characterizing Repackaged homogenous Solids as Retrievably Stored Waste  
with Regard to Solids Sampling**

## **Acronyms and Abbreviations**

AK	Acceptable Knowledge
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CH	Contact Handled
DOE	Department of Energy
EPA	United States Environmental Protection Agency
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PMR	Permit Modification Request
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SPC	Statistical Process Control
SVOC	Semi-Volatile Organic Compound
TIC	Tentatively Identified Compound
TRU	Transuranic
TSDF	Treatment, Storage and Disposal Facility
VOC	Volatile Organic Compound
WAP	Waste Analysis Plan
WIPP	Waste Isolation Pilot Plant
WTS	Westinghouse TRU Solutions LLC

## Overview of the Permit Modification Request

This PMR is being submitted by the DOE, CBFO and WTS, collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1 (20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)). The modification will provide options for waste analyses activities being conducted at generator/storage sites that send waste for management and disposal at WIPP. The PMR allows the use of retrievably stored waste characterization techniques for repackaged homogenous solid waste. This change does not reduce the ability of the Permittees to provide continued protection to human health or the environment.

The requested modification to the WIPP HWFP and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP HWFP have been identified using a double underline, and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotation are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP HWFP requirements, Permit Condition I.B.1 for submission of this Class 2 PMR.

**1. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)) requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

The proposed modification will allow generator/storage sites throughout the DOE complex more flexibility in selecting the most efficient approach to performing some waste analysis tasks. A summary of the changes follows:

The WIPP HWFP establishes different waste characterization requirements for newly-generated waste and retrievably stored waste that must be implemented by the generator/storage sites. However, in response to comments on the revised draft permit, the New Mexico Environment Department (**NMED**) indicated that there would be times when a generator could elect to conduct some characterization activities for repackaged waste in the same manner they would be conducted for retrievably stored waste. This modification removes the ambiguity with regard to the use of control charts<sup>3</sup> and the appropriate number of samples, and clearly allows the generator the option to characterize repackaged homogeneous solids as retrievably stored waste, using the statistical determination in Attachment B2-2a of the permit. This statistical determination results in the minimum number of samples required to assure that a waste stream or waste stream lot is sampled representatively. Table 1 in Attachment A lists the sections of the permit affected by this change.

---

<sup>3</sup>Control charts are required by the WIPP HWFP for demonstrating whether or not waste characteristics remain constant as a waste stream is generated.

**2. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)) requires the applicant to identify that the modification is a Class 2 modification.**

The proposed modification is classified as a Class 2 permit modification because it is considered an “other change to a Waste Analysis Plan” (per 20.4.1.900 NMAC incorporating 40 CFR §270.42 Appendix I (B.1.d)).

Unless a waste generating process was designed to control the hazardous constituent parameters, it will not be possible to demonstrate that the waste stream has a constant mean and constant variance. In these cases it is not feasible to develop meaningful control charts from baseline sampling and acceptable knowledge (**AK**) information will be used to demonstrate this lack of feasibility and it will be maintained in the sites’ records. Additionally, these wastes should be sampled using the requirements in B2-2, *Approach for Statistically Selecting Retrievably Stored Waste Containers for Totals Analysis*. As a result of this PMR if a generator/storage site demonstrates using AK information that meaningful control charts cannot be established for repackaged retrievably stored homogeneous waste (Summary Category S3000) then they can opt for the sampling associated with managing the waste as retrievably stored S3000 waste. This not only results in the minimum amount of sampling needed to representatively characterize the waste it also clarifies a change that NMED made to the final permit.

**3. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)) requires the applicant to explain why the modification is needed.**

The language in the WIPP HWFP is ambiguous with regard to the sample size required for retrievably stored homogeneous solids that are repackaged. In order to resolve this ambiguity, two permit changes are needed. First, the language in B-3d needs to be changed to be consistent with the statement in B-3d(2). This change assures that if a generator knows that control charts are not appropriate for a repackaged retrievably stored waste, the generator does not have to pursue that option. Second, the phrase in Section B-3d(2): “*whichever results in the greater sampling requirements*” is clarified. The permit requires that waste streams be representatively sampled. The maximum number of samples required to achieve representativeness is defined by the statistical approach in Section B2-2a. If a generator/storage site can control chart a repackaged waste stream, then the benefits of reduced sampling that accompany control charting are available. Otherwise, the generator/storage site can opt for the requirements for representative sampling as found in Attachment B2-2a.

**4. 20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the WIPP HWFP that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000, incorporating the CFR, Title 40 (40 CFR Parts 264 and 270). 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. 40 CFR §270.23 is

applicable to the WIPP Hazardous Waste Disposal Units (**HWDUs**). This modification does not impact the conditions associated with the HWDUs.

- 5. 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Module I.F of the WIPP HWFP.

## Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A		✓
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B	✓	
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment B	✓	
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D		✓
	§264.174	Container inspections	Attachment D		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		
§270.14(b)(7)	Part 264 Subpart D	Contingency plan requirements	Attachment F		✓
	§264.51	Contingency plan design and implementation	Attachment F		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F		✓
	§264.53	Contingency plan copies	Attachment F		✓
	§264.54	Contingency plan amendment	Attachment F		✓
	§264.55	Emergency coordinator	Attachment F		✓
	§264.56	Emergency procedures	Attachment F		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		✓
§270.14(b)(8)(i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E		✓
§270.14(b)(8)(ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E		✓
§270.14(b)(8)(iii)		Prevention of contamination of water supplies	Attachment E		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(8)(iv)		Mitigation of effects of equipment failure and power outages	Attachment E		✓
§270.14(b)(8)(v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		✓
§270.14(b)(8)(vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
	Part 264 Subpart C	Preparedness and Prevention	Attachment E		✓
	§264.31	Design and operation of facility	Attachment E		✓
	§264.32	Required equipment	Attachment E Attachment F		✓
	§264.33	Testing and maintenance of equipment	Attachment D		✓
	§264.34	Access to communication/alarm system	Attachment E		✓
	§264.35	Required aisle space	Attachment E		✓
	§264.37	Arrangements with local authorities	Attachment F		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		✓
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G		✓
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b)(11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Attachment H		✓
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		✓
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment I		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment I		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment I		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓



Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		✓
§270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
§270.23	Part 264 Subpart X	Miscellaneous units	Attachment M2		✓
§270.23(a)(1)	§264.601	Detailed unit description	Attachment M2		✓
§270.23(a)(2)	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment D Attachment M2 Attachment N		✓
§270.23(a)(3)	§264.603	Post-closure care	Attachment J Attachment J1		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		✓
	Part 264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B		✓

## **Item 2**

### **Characterizing Repackaged Homogenous Solids as Retrievably Stored Waste with Regard to Solids Sampling**

#### **Description:**

Allow the use of retrievably-stored waste characterization techniques for repackaged homogeneous solids.

#### **Basis:**

The WIPP HWFP establishes different waste characterization requirements for newly-generated waste and retrievably stored waste. In the response to comments on the revised draft permit, the NMED indicated that there would be times when a generator could elect to characterize repackaged waste as retrievably stored waste. However, when homogeneous solid waste is repackaged, the WIPP HWFP requires that it be characterized as newly-generated waste. Ambiguity in the wording in the permit has created confusion, particularly with regard to the appropriate sample size. This modification removes the ambiguity and clearly allows the option to characterize repackaged homogeneous solids as retrievably stored waste, using representative sampling following the sample size determination in Attachment B2-2a of the permit. The proposal for repackaged homogenous solids is consistent with the approach required for newly generated soils and gravels in Permit Attachment B-3d(1)(b).

#### **Discussion:**

The WIPP HWFP establishes different sets of waste characterization requirements for newly generated waste and retrievably stored waste. These requirements are summarized in Table B-6. With regard to Summary Category S3000 homogeneous solids, Table B-6 refers to Attachment B2 for determining the sampling frequency for S3000 waste. The representative sampling methodologies established in Attachment B2 for determining the sample size and for selecting the samples for analysis were primarily taken from the Permit Application and the Quality Assurance Program Plan. These pre-permit documents assumed that waste characterization was different for mixed waste and non-mixed waste. Therefore, emphasis was placed on having sufficient samples to determine whether or not a hazardous waste number should be applied to a waste stream. The inclusion of Condition IV.B.2.b. in the WIPP HWFP rendered the determination that a waste is not hazardous less important, because all waste is subjected to the same characterization and management activities. Under the terms of the WIPP HWFP, waste characterization requirements do not change by demonstrating through sampling and analysis that a hazardous waste number does not apply. In fact, the amount of sampling required for homogeneous solids may be significantly reduced by assigning the hazardous waste number if there are indications that a toxicity characteristic compound is in the waste or could be in the waste in any concentration.

## **SAMPLE SIZE FOR RETRIEVABLY STORED WASTE**

For retrievably stored waste, the number of samples required is specified by the methodology in Attachment B2-2a. This methodology is summarized as follows:

- Segregate the waste into waste streams based on AK information.
- Assign listed hazardous waste numbers and determine the constituents for toxicity determination.
- Select five containers for sampling and analysis to determine the preliminary estimate of toxicity concentration. The preliminary estimate can be based on previous sampling and analysis if such data exist.
- Use the statistical estimates in the Attachment B2-2a to calculate how many samples are needed to establish the bounding concentration of each constituent.
- If the generator is seeking to show that a hazardous waste number for a toxicity characteristic should not be assigned to a waste stream, the calculated number of samples must be taken by randomly selecting the containers from the waste stream. A minimum of five samples is required.
- If the generator chooses to assign the toxicity characteristic number to the waste stream, the sample is limited to the minimum five sample population, chosen randomly from the waste stream.

Based on the approach defined in Attachment B2-2a, the minimum number of samples for a retrievably stored waste stream is five samples. The maximum, following this procedure, could be very large if the mean concentration is near the regulatory threshold limit and the generator chooses to prove that a toxicity characteristic hazardous waste number does not apply.

## **SAMPLE SIZE FOR NEWLY-GENERATED WASTE**

The sampling strategy in the WIPP HWFP for newly-generated homogeneous solids was developed to significantly reduce the number of samples required for waste streams where it was important to demonstrate that a toxicity characteristic compound remained below the regulatory threshold limit and to address the issue that not all the containers are initially available for random selection. In this case, the waste stream would be characterized up front by developing baseline statistics on the concentrations of hazardous constituents in the generated waste. The baseline statistics would then be used to establish control charts with bounding concentrations for the hazardous constituents in the waste. These control charts would be used to assure the waste stream variability remained in control, that is, the variability over time remains within preset concentration bounds. Under the terms of the HWFP, a S3000 waste stream that remains in control requires only one annual sample to verify that the concentrations of the hazardous constituents remain within the established control chart bounds. This approach is only applicable if *“a process has operated within procedurally established bounds without any process fluctuations which would results in either a new waste stream or the identification of a new hazardous waste constituent in that waste stream.”* (Section B-3d(1)(a)). Section B-3d(1)(a) provides examples of the procedurally established bounds by defining them as *“parameter bounds”* stating *“Examples of parameter bounds that could affect a waste generated by a process are volumes of*

*input materials, change in the input material, and any other changes that would change the output of that process.”*

In accordance with Attachments B-3d(1)(a) and B2-4, the sample size for newly generated homogeneous solids is ten initial samples to develop statistical control charts that bound the waste constituent concentration(s) in the final waste form. Then a minimum of one sample must be taken annually to ensure that the hazardous constituent concentrations fall within the control chart bounds. In addition, measurable procedural controls must be used to establish parameter bounds that assure that the variability of the waste stream remains acceptably small.

It is not possible to determine the total number of samples that will be taken for any given newly-generated waste stream, because the time period over which any stream will be generated is unknown. However, the permit does establish a minimum (non-random) sample size of ten samples to establish the control chart baseline.

### **SAMPLE SIZE FOR REPACKAGED RETRIEVABLY STORED HOMOGENEOUS SOLID WASTE**

The following two cases describe the two conflicting areas of the existing permit language and how they could be interpreted. These cases illustrate why the existing permit language should be modified.

Case 1: Attachment B-3d states: *“Repackaged waste **shall** undergo characterization required of newly generated waste.”* (Emphasis added.) In this scenario, two actions must be taken. First, the initial ten sample set has to be taken and analyzed to establish the statistical control charts as required by Permit Attachment B-3d(1)(a). Second, procedural controls over the waste generation process must be established to ensure the waste remains within the expected range of concentration variability. For waste being repackaged and no process has controlled the hazardous waste constituents present, this step is not feasible. In these instances, the permit is unclear regarding what action is to be taken if process controls cannot be established. The conservative action is to assume that the concentration variability limits are exceeded. According to the text in Attachment B-3d(1)(a), the action when the limits are exceeded is to revert to the sampling strategy for retrievably stored waste. In this case, if the ten sample baseline was selected randomly for the waste stream and the procedures in the permit were used for sampling and analysis, and the generator/storage site assigns toxicity characteristic codes independent of concentrations no additional samples would be needed. If the baseline samples were not in accordance with the permit, then a minimum of five additional random samples, selected in accordance with Attachment B2-2a would be needed.

Case 2: Attachment B-3d(2) states: *“Repackaged retrievably stored waste, or any retrievably stored waste with inadequate acceptable knowledge, **will** be characterized using either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements.”* (Emphasis added.) This condition is not consistent with the one in Attachment B-3d because it imposes the “greater sampling requirements” as the basis for selecting the appropriate method for

characterization for repackaged waste. This text was added to the final permit by the NMED in response to a comment raised by W. Lawless of the Savannah River Citizens Advisory Board. The comment dealt with the difference between newly-generated waste and retrievably stored waste. The NMED's response is as follows

*NMED has received numerous comments regarding the distinction between newly generated and retrievably stored waste with regard to repackaged waste and waste with poor acceptable knowledge. NMED concludes that waste with poor acceptable knowledge as specified in Permit Attachment B and repackaged waste must undergo visual examination, 100% headspace gas, and acceptable knowledge characterization consistent with that for newly generated waste. As pointed out by commentors and as clarified in CARD's cross-examination of Ms. Connie Walker, if the waste with poor acceptable knowledge or repackaged waste is an S3000 waste, it is possible that the newly generated waste process for sampling these wastes could lead to fewer samples being collected than the retrievably stored waste process. However, it is also possible, and even likely, that more samples would be collected using the newly generated process because this process requires generation of a 10-point control chart which could only be generated via sample collection if data for a waste stream were exceptionally limited. NMED concludes that for repackaged waste, sites should be given the flexibility to sample solid/solidified wastes using either the retrievably stored or newly generated sampling methodology, whichever is more conservative. In addition, NMED has determined that clarification of the waste characterization processes is warranted. NMED intended that wastes repackaged (or with poor AK requiring repackaging) would undergo 100% visual examination, 100% headspace gas, and (as appropriate) sampling/analysis. NMED did not intend to require recategorization of retrievably stored waste to newly generated waste, only that the characterization procedures be modified. Therefore, NMED concludes that for repackaged waste, facilities may consider this waste retrievably stored or newly generated, so long as the appropriate characterization procedures are performed. [Response to Comments on the Revised Draft Permit Comment FF.1-5]*

This response by the NMED does not totally clear up the issue. It still is not clear how many samples would be needed under this scenario. The text "... *whichever results in the greater sampling requirements* ..." is unresolved. The implication is that there may be circumstances when a number of samples that exceeds the number dictated by Section B2-2a must be selected and analyzed. However, because the number of samples required by Section B2-2a is representative of the waste stream, there is no justification for sampling in excess of this number.

## **RESOLUTION**

In order to resolve this inconsistency, two changes are proposed to the permit in this modification. First, the modification proposes to change the language in B-3d to reflect the statement in B-3d(2). This change assures that if control charts are not appropriate for a repackaged retrievably stored waste, the control charts do not have to be used. Second, the phrase "*whichever results in the greater sampling requirements*" is clarified. The phrase is intended to assure that waste streams are representatively sampled. If a generator can control chart a repackaged waste stream, then the benefits of reduced sampling that accompany control charting are available. Otherwise, the minimum requirements for representative sampling as found in Attachment B2-2a will apply.

Note that this modification does not remove the requirement to characterize repackaged S3000 waste as newly-generated waste except for the case when the generator/storage site opts to use the retrievably stored waste approach for solids sampling.

### **Proposed Revised Permit Text:**

a. 1. Module II.C.1.c. Statistical methods used in sampling and analysis

- the Permittees shall require that generator/storage sites use the methods for statistically selecting retrievably stored and newly-generated TRU mixed waste containers for visual examination and volatile organic compounds (**VOCs**), semivolatile organic compounds (**SVOCs**), and total metals analysis, establishing upper confidence limits, and, when appropriate, control charting for newly-generated waste stream sampling specified in Permit Attachment B2 (Statistical Methods Used in Sampling and Analysis).

**Rationale for this change:**

The change to Module II.C.1.c is necessary because there may be times when repackaged S3000 waste cannot be controlled charted for solids sampling as newly-generated waste. According to Section B-3d, this waste must be characterized as newly-generated waste, however, the generator/storage site may opt for the retrievably stored waste statistics. The words “when appropriate” allow the generator the flexibility to elect characterization methods that do not involve control charting.

b. 1. B-1a Waste Stream Identification

TRU mixed waste destined for disposal at WIPP will be characterized on a waste stream basis. Generator/storage sites will delineate waste streams using acceptable knowledge. Required acceptable knowledge is specified in Section B-3b and Permit Attachment B4. If acceptable knowledge for retrievably stored waste does not comply with these requirements (i.e., e.g., heterogenous Debris Waste in Summary Category S5000), the Permittees will reexamine (and characterize) the waste ~~in the same manner as newly-generated waste~~ as prescribed in Permit Attachment B-3d.

**Rationale for this change:**

This change accomplishes two things. First, it broadens the requirement to all Waste Summary Category Groups, which is the intent of the discussion in Section B-3d since repackaging of homogeneous solids may occur in order to collect required AK information. Second, it defers the criteria for judging when such waste must be managed as newly-generated waste to Section B-3d where repackaged and treated waste of all Summary Category Groups are considered.

b. 2. B-3d Characterization Techniques and Frequency for Newly Generated and Retrievably Stored Waste

All waste containers (retrievably stored and newly generated) or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) are sampled and analyzed for VOCs in the headspace gas. A statistically selected portion of each homogeneous solids and soil/gravel waste stream is sampled and analyzed for RCRA-regulated total VOCs, SVOCs, and metals (see Permit Attachment B2). Sampling and analysis methods used for waste characterization are discussed in Section B-3a. In the process of performing organic headspace and solid sample analyses, nontarget compounds may be identified. These compounds will be reported as TICs. TICs found in 25% of the samples and listed in 20 NMAC 4.1.200 (incorporating 40 CFR §261) Appendix VIII, will be compared with acceptable knowledge data to determine if the TIC is in a listed hazardous waste in the waste stream. TICs identified through headspace gas analyses that meet the Appendix VIII list criteria and the 25 percent identification criteria for a waste stream will be added to the headspace gas waste stream target list, regardless of the hazardous waste listing associated with the waste stream. TICs subject to inclusion on the target analyte list that are toxicity characteristic parameters shall be added to the target analyte list regardless of origin because the hazardous waste designation for these codes is not based on source. However, for toxicity characteristic and non-toxic F003 constituents, the site may take concentration into account when assessing whether to add a hazardous waste code. TICs reported from the Totals VOC or SVOC analyses may be excluded from the target analyte list for a waste stream if the TIC is a constituent in an F-listed waste whose presence is attributable to waste packaging materials or radiolytic degradation from acceptable knowledge documentation. If the TIC associated with a total VOC or SVOC analysis cannot be identified as a component of waste packaging materials or as a product of radiolysis, the Permittees will add these TICs to the list of hazardous constituents for the waste stream (and assign additional EPA listed hazardous waste codes, if appropriate). A permit modification will be submitted to NMED for their approval to add these constituents (and waste codes), if necessary. For toxicity characteristic compounds and non-toxic F003 constituents, the Permittees may consider waste concentration when determining whether to change a hazardous waste code. Refer to Permit Attachment B3 for additional information on TIC identification.

Waste characterization solid sampling and analysis activities ~~will~~may differ for retrievably stored waste and newly generated waste. The waste characterization data



collection design for each type of waste is described in the following sections. Table B-1 provides a summary of hazardous waste characterization requirements for all TRU mixed waste by waste characterization parameters.

**Rationale for this change:**

**Under this modification, solids sampling for repackaged S3000 waste may be the same as the solids sampling process for retrievably stored waste.**

Table B-6 summarizes the parameters, methods, and rationales for stored and newly generated CH TRU mixed wastes according to their waste forms.

WIPP may accept TRU mixed waste that has been repackaged or treated. Repackaged or treated waste shall undergo characterization required of newly generated waste except that solids sampling for repackaged or treated S3000 waste may be characterized as retrievably stored waste if the generator/storage sites believes that control charting cannot be applied effectively to the repackaging or treatment process. Repackaged waste shall also undergo headspace gas analysis, and payload container headspace shall be sampled after repackaging, as long as the criteria specified in Permit Attachment B1-1 are met. Treated waste ~~shall be considered newly generated waste, and~~ shall retain the original waste stream's listed hazardous waste code designation.

**Rationale for this change:**

**This change is needed to allow the generator/storage site to opt out of the control charting process if it does not apply. The change does not remove the requirement to characterize repackaged or treated waste as newly-generated waste. It only allows opting out for the specific activity of solids sampling.**

**b. 3. B-3d(2) Retrievably Stored Waste**

All retrievably stored waste containers will first be delineated into waste streams using acceptable knowledge. All retrievably stored waste containers will be examined using radiography to confirm the physical waste form (Summary Category Group), to verify the absence of prohibited items, and to determine the waste characterization techniques to be used based on the Summary Category Groups (i.e., S3000, S4000, S5000). Repackaged retrievably stored waste, or any retrievably stored waste with inadequate acceptable knowledge, will be characterized using either the retrievably stored or newly generated waste characterization process, ~~whichever results in greater sampling requirements.~~ Solids sampling for repackaged or treated S3000 waste may be

characterized as retrievably stored waste if the generator/storage sites believes that control charting cannot be applied effectively to the repackaging or treatment process. This decision by the generator/storage site must be documented on the Characterization Information Summary. In this case, the minimum number of solids samples required for any S3000 waste stream or waste stream lot is the number of samples determined in accordance with Section B2-2a. Radiographic results will be compared to acceptable knowledge results to ensure correct Waste Matrix Code assignment and identification of prohibited items. If radiographic analysis do not confirm the physical waste form, waste will be reassigned as specified in Section B-3c. Generator/storage sites may elect to substitute visual examination for radiographic analysis.

**Rationale for this change:**

**This change is needed to make the text consistent with the text in Section B-3d and to quantify the minimum number of samples that are needed to achieve representativeness as the number calculated when following the process in Section B2-2a. In addition, this change is needed to assure that repackaged waste characterized as newly-generated waste in all other aspects except solids sampling. Finally, this change requires that a decision that control charting is not appropriate must be documented on the Waste Stream Profile Form.**

**c. 1. B1-2b(1) Co-located Samples**

In accordance with the requirement to collect field duplicates required by the Environmental Protection Agency (EPA) methods found in SW-846 (EPA 1996), samples shall be collected to determine the combined precision of the coring and sampling procedures. The co-located core methodology is a duplicate sample collection methodology intended to collect samples from a second core placed at approximately the same location within the drum when samples are collected by coring. ~~Newly generated waste~~ Waste may not be amenable to coring in some instances. In this case, a co-located sample may be collected from a sample (e.g. scoop) collected from approximately the same location in the waste stream. A sample from each co-located core or ~~newly generated waste~~ sample collected by other means shall be collected side by side as close as feasible to one another, handled in the same manner, visually inspected through the transparent liner (if cored), and sampled in the same manner at the same randomly selected sample location(s). If the visual examination detects inconsistencies such as color, texture, or waste type in the waste at the sample location, another sampling location may be randomly selected, or the samples may be invalidated and co-located samples or cores may again be collected. Co-located samples, from either core or other sample type, shall be collected at a frequency of one per sampling batch or once per week, whichever is more frequent. A sampling batch is a suite of homogenous solids and soil/gravel samples collected consecutively using the same sampling equipment within a specific time period. A sampling batch can be up to 20 samples (excluding field QC samples), all of which shall be collected within 14 days of the first sample in the batch.

**Rationale for this Change:**

**This change is necessary to clarify that sampling requirements in this section may apply to retrievably stored homogeneous solids as well as newly-generated waste.**

d. 1. B2-2a Statistical Selection of containers for Totals Analysis

The statistical approach for characterizing retrievably stored homogeneous solids and soil/gravel waste and repackaged or treated S3000 waste that the generator/storage site believes is not suitable for control charting using sampling and analysis relies on using acceptable knowledge to segregate waste containers into relatively homogeneous waste streams. Using acceptable knowledge, generator/storage sites will classify the entire waste stream as hazardous or nonhazardous rather than individual waste containers. Individual waste containers serve as convenient units for characterizing the combined mass of waste from the waste stream of interest. Once segregated by waste stream, random selection and sampling of the waste containers followed by analysis of the waste samples shall be performed to ensure that the resulting mean contaminant concentration provides an unbiased representation of the true mean contaminant concentration for each waste stream. The Permittees shall require each site project manager to verify that the samples collected from within a waste stream were selected randomly.

**Rationale for this change:**

**This change is needed to allow the generator/storage site to characterize repackaged and treated S3000 waste that cannot be control charted as retrievably stored waste.**

d. 2. B2-4 Control Charting for Newly Generated Waste Stream Sampling

For newly generated waste streams that the generator characterizes using control charts, significant Significant process changes and process fluctuations associated with newly generated waste will be determined using statistical process control (SPC) charting techniques; these techniques require historical data for determining limits for indicator species, and subsequent periodic sampling to assess process behavior relative to historical limits. SPC will be performed on waste prior to solidification or packaging for ease of sampling. If the limits are exceeded for any toxicity characteristic parameter, the waste stream shall be recharacterized, and the characterization shall be performed according to procedures required in the WAP.

**Rationale for this change:**

**This change is needed to allow the generator/storage site to characterize repackaged and treated S3000 waste that cannot be control charted as retrievably stored waste instead of newly-generated waste.**

**e. 1. Table B6-1**

29	<p>Are procedures in place to ensure that the following characterization activities shall occur for repackaged waste:</p> <ul style="list-style-type: none"><li>• Acceptable Knowledge, with confirmatory:<ul style="list-style-type: none"><li>- Visual examination during repackaging for all waste containers</li><li>- Headspace gas analysis for all waste containers</li><li>- Total VOC, SVOC, and Metals analyses following either the retrievably stored or newly generated waste characterization process, <del>which ever results in greater sampling requirements</del></li><li>- Evaluation of any TICs found in headspace gas and totals analyses</li></ul></li></ul> <p>(Section B-3d, B-3d(1))</p>
----	--

**Rationale for this Change:**

**This change to the B6 checklist is to ensure it is consistent with the revised text elsewhere in the Waste Analysis Plan.**

### **Item 3**

## **Classified Information Recordkeeping and Audit Requirements**

## **Acronyms and Abbreviations**

CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
DOE	Department of Energy
FRC	Federal Records Center
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PMR	Permit Modification Request
QA	Quality Assurance
QAPjP	Quality Assurance Project Plan
QC	Quality Control
RIDS	Records Inventory and Disposition Schedule
Site	Generator/Storage Site
SOP	Standard Operating Procedure
TRU	Transuranic
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WIPP	Waste Isolation Pilot Plant
WTS	Westinghouse TRU Solutions

## Overview of the Permit Modification Request

This PMR is being submitted by the DOE, CBFO and WTS, collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1 (20.4.1.900 NMAC incorporating 40 CFR §270.42(b)). The modification is necessary to incorporate recordkeeping and audit requirements for classified information. These changes do not reduce the ability of the Permittee to provide continued protection to human health or the environment.

The requested modification to the WIPP HWFP and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP HWFP has been identified using a double underline and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP HWFP requirement, Permit Condition I.B.1 for submission of this Class 2 PMR.

1. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)), requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

The proposed modification incorporates recordkeeping and audit requirements for classified information. The exact, proposed text changes are found in Attachment A of this PMR.

2. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.**

The proposed modification is classified as a Class 2 permit modification.

3. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.**

The inventory of transuranic (**TRU**) waste destined for disposal at WIPP includes some waste materials that have associated classified information. This information is classified for national security reasons. Waste with associated classified information will be characterized in accordance with the WIPP Waste Analysis Plan and will meet the WIPP Waste Acceptance Criteria. The receipt and disposal of waste with associated classified information at WIPP requires modification to the procedures for maintaining the operating record to accommodate the national security concerns associated with classified information.

- 4. 20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk described those portions of the WIPP HWFP that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000, incorporating the CFR, Title 40 (40 CFR Parts 264 and 270). 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. 40 CFR §270.23 is applicable to the WIPP Hazardous Waste Disposal Units (**HWDUs**). This modification does not impact the conditions associated with the HWDUs.

- 5. 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Module I.F of the WIPP HWFP.



## Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A		✓
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B	✓	
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment B	✓	
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D		✓
	§264.174	Container inspections	Attachment D		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment F		✓
	§264.51	Contingency plan design and implementation	Attachment F		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F		✓
	§264.53	Contingency plan copies	Attachment F		✓
	§264.54	Contingency plan amendment	Attachment F		✓
	§264.55	Emergency coordinator	Attachment F		✓
	§264.56	Emergency procedures	Attachment F		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		✓
§270.14(b)(8) (i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E		✓
§270.14(b)(8) (ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E		✓
§270.14(b)(8) (iii)		Prevention of contamination of water supplies	Attachment E		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(8) (iv)		Mitigation of effects of equipment failure and power outages	Attachment E		✓
§270.14(b)(8) (v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		✓
§270.14(b)(8) (vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Attachment E		✓
	§264.31	Design and operation of facility	Attachment E		✓
	§264.32	Required equipment	Attachment E Attachment F		✓
	§264.33	Testing and maintenance of equipment	Attachment D		✓
	§264.34	Access to communication/alarm system	Attachment E		✓
	§264.35	Required aisle space	Attachment E		✓
	§264.37	Arrangements with local authorities	Attachment F		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		✓
§270.14(b) (10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G		✓
§270.14(b) (11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b) (11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b) (12)	§264.16(a-e)	Personnel training program	Attachment H		✓
§270.14(b) (13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		✓
§270.14(b)(13)	§264.112(a)(b)	Written content of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment I		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment I		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment I		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		✓
§270.15	§264 Subpart I	Containers	Attachment M1		✓
	§264.171	Condition of containers	Attachment M1		✓
	§264.172	Compatibility of waste with containers	Attachment M1		✓
	§264.173	Management of containers	Attachment M1		✓
	§264.174	Inspections	Attachment D Attachment M1		✓
§270.15(a)	§264.175	Containment systems	Attachment M1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Attachment E Permit Module II		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Attachment E Permit Module II		✓
	§264.178	Closure	Attachment I		✓
§270.15(e)	§264.179	Air emission standards	Attachment E Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment M2		✓
§270.23(a)	§264.601	Detailed unit description	Attachment M2		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		✓
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
			Attachment N		
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment M2 Attachment N		✓
	§264.603	Post-closure care	Attachment J Attachment J1		✓
	264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B	✓	

### Item 3

#### Recordkeeping and Audit Requirements for Classified Information

##### Description:

This modification will incorporate recordkeeping and audit requirements for classified information. This modification request deals with the storage and review of radiography tapes which contain classified information or records which may contain information which are a matter of national security. Personnel with appropriate security clearances may have access to this data. NMED is obtaining those clearances for their personnel.

All waste material stored or disposed at WIPP will still be characterized as required by the WIPP Waste Analysis Plan and which meets the WIPP Waste Acceptance Criteria.

##### Basis:

The inventory of TRU waste destined for disposal at WIPP includes some waste materials that have associated classified information. This information is classified for national security reasons. This information has to do with the shapes of the waste only and this modification request will deal with radiography tapes of the classified shapes only. Waste with associated classified information will be characterized in accordance with the WIPP Waste Analysis Plan (**WAP**) and will meet the WIPP Waste Acceptance Criteria (**WAC**). Waste management activities, including security, waste storage and disposal, and Contingency Plan responses, will remain unchanged with the incorporation of classified information. The receipt and disposal of waste with associated classified information at WIPP requires modification to the procedures for maintaining the operating record to accommodate the national security concerns associated with classified information as required by 10 CFR 1016, *Safeguarding of Restricted Data*.

##### Discussion:

Recordkeeping requirements affected by these changes include storage of WIPP-reviewed radiography tapes, disposition of classified information, and retrieval of electronic and video data for classified material. These changes are explained as follows:

- Because the radiography tapes may be detailed enough to reveal specific classified information, the tapes must be stored in a location approved for classified information. For example, should a radiography tape be selected for the one percent review required by Permit Attachment B-1c, the Permittees would perform the review of the tape at Sandia National Laboratory. Only the records of the review would be supplied to the WIPP Operating Record. Following review of the tape, the tape would be returned to the generator site.
- As generator/storage sites cease to operate, the Permit requires that characterization data be transferred. Classified information (i.e radiography tapes) cannot be transferred to WIPP due to national security concerns as required by 10 CFR 1016, *Safeguarding of Restricted Data*, because WIPP does not have an approved secure information storage location. Consequently, each generator/storage site's Records Inventory and Disposition Schedule (**RIDS**) must identify the destination of classified information, and classified information must be dispositioned accordingly. Notations will be provided to WIPP indicating radiography tapes were dispositioned as classified information and were not included with other records sent to the Permittees.

- The permit requires that waste characterization information be readily retrievable. Due to national security concerns, additional procedures will be in place regarding classified information which may be contained on radiography tapes as required by 10 CFR 1016, *Safeguarding of Restricted Data*. These procedures will assure such information is available; however, only personnel with appropriate security clearances will be allowed to view the information.
- In addition, the audit requirements found in Section B6-1 must be modified to clarify that only personnel with appropriate security clearances can have access to the classified information on radiography tapes as required by 10 CFR 1016, *Safeguarding of Restricted Data*. These changes are necessary to accommodate national security concerns for classified information.

### **Proposed Revised Permit Text:**

#### **a. 1. Module II.K.1**

The Permittees shall maintain a written operating record at the facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.73(a)). The written operating record shall include all information required under 20.4.1.500 NMAC (incorporating 40 CFR §264.73(b)) subject to the limitations on the storage of classified information as discussed in Permit Attachment B-1c. The Permittees shall maintain the operating record until closure of the facility.

#### **b.1. Section B-1c**

Before accepting a container holding TRU mixed waste, the Permittees will ensure, through audit and as part of their Permittee-level data reviews (Section B3-10c), that generator/storage sites examine the radiography or visual examination data records (Section B-4b) to verify that the container holds no unvented compressed gas containers and that residual liquid does not exceed 1 percent volume in any payload container. If discrepancies or inconsistencies are detected during the data review, the generator/storage site will review the radiography video tape or visual examination tape to verify that the observed physical form of the waste is consistent with the waste stream description provided by the generator and to ensure that no prohibited items are present in the waste. Radiography tapes will be selected randomly from at least one percent of containers received at WIPP and will be reviewed and compared to radiographic data forms. (Note that for radiography tapes containing classified information, review of radiography tapes will be conducted at a secure location other than WIPP. The records generated from the Permittee's review of radiography tapes will be sent to WIPP for inclusion in the Operating Record, while the original tape will be maintained at another secure location.) All personnel who review radiography video tapes will be trained to the same standard as radiography operators. Section B-4 includes a description of the waste verification process that the Permittees will conduct prior to receiving a shipment at the WIPP facility.

b.2. Section B-4a(7)

Records inventory and disposition schedule (**RIDS**) or an equivalent system shall be prepared and approved by generator/storage site personnel. All records relevant to an enforcement action under this Permit, regardless of disposition, shall be maintained at the generator/storage site until NMED determines they are no longer needed for enforcement action, and then dispositioned as specified in the approved RIDS. All waste characterization data and related QA/QC records in the generator/storage site project files for TRU mixed waste to be shipped to the WIPP facility are designated as either Lifetime Records or Non-Permanent Records. Records that are designated as Lifetime Records shall be maintained for the life of the waste characterization program at a participating generator/storage site plus six years, then offered to the Permittees for permanent archival of information of these records in the appropriate form, or transferred to the appropriate Federal Records Center (**FRC**). Waste characterization records designated as Non-Permanent Records shall be maintained for ten years from the date of (record) generation and then dispositioned according to their approved RIDS. If a generator/storage site ceases to operate, all records shall be transferred before closeout. Table B-7 provides a listing of records designated as Lifetime Records and Non-Permanent Records. Classified information will not be transferred to WIPP. Notations will be provided to the Permittees indicating the absence of classified information. The approved generator/storage site RIDS will identify appropriate disposition of classified information. Nothing in this Permit is intended to, nor should it be interpreted to, require the disclosure of any U.S. Department of Energy classified information to persons without appropriate clearance to view such information.

c.1. Section B1-3a

Radiography has been developed by the Permittees specifically to aid in the examination and identification of containerized waste. There is no equivalent or associated method found in EPA sampling and analysis guidance documents. The Permittees shall require that sites describe all activities required to achieve the radiography objectives in site QAPjPs and SOPs.

A radiography system normally consists of an X-ray-producing device, an imaging system, an enclosure for radiation protection, a waste container handling system, an audio/video recording system, and an operator control and data acquisition station. Although these six components are required, it is expected there will be some variation within a given component between sites. The X-ray-producing device shall have controls which allow the operator to vary the voltage, thereby controlling image quality. It should be possible to vary the voltage, typically between 150 to 400 kilovolts (**kV**), to provide an optimum degree of penetration through the waste. For example, high-density material should be examined with the X-ray device set on the maximum voltage. This ensures maximum penetration through the waste container. Low-density material should be examined at lower voltage settings to improve contrast and image definition. The imaging system typically utilizes a fluorescent screen and a low-light television camera.



To perform radiography, the waste container is scanned while the operator views the television screen. An audio/videotape or equivalently non-alterable media is made of the waste container scan and is maintained as a non-permanent record. A radiography data form is also used to document the Waste Matrix Code and estimated waste material parameter weights of the waste. The estimated waste material parameter and weights should be determined by compiling an inventory of waste items, residual materials, and packaging materials. The items on this inventory should be sorted by waste material parameter and combined with a standard weight look-up table to provide an estimate of waste material parameter weights. Containers with lead liners, or other containers whose contents prevent full examination of the remaining contents, shall be subject to visual examination.

For containers which contain classified shapes and undergo radiography the radiography tape will be considered classified. The radiography data forms will not be considered classified.

c.2. Section B1-3b(3)

As an additional QC check, or in lieu of radiography, the waste container contents shall be verified directly by visual examination of the waste container contents. Visual examination shall be performed on a statistically determined portion of waste containers to verify the results of radiography. With the exception of items or conditions that could pose a hazard to visual examination personnel, the radiography results shall not be made available until after the visual examination is completed. This verification shall include the Waste Matrix Code and waste material parameter weights. The verification shall be performed through a comparison of radiography and visual examination results. The Waste Matrix Code is determined and waste material parameter weights are estimated to verify that the container is properly included in the appropriate waste stream. The results of the visual examination shall be transmitted to the radiography facility.

Visual examination shall be conducted to describe all contents of a waste container, and includes estimated or measured weights of the contents. The description shall clearly identify all discernible waste items, residual materials, packaging materials, or waste material parameters. Visual examination experts who are experienced and trained shall assess the need to open individual bags or packages of waste. If individual bags/packages are not opened, estimated weights shall be recorded. Estimated weights shall be established through the use of historically derived waste weight tables and an estimation of the waste volumes. It may not be possible to see through inner bags because of discoloration, dust, or because inner containers are sealed. In these instances, documented acceptable knowledge may be used to identify the matrix parameter category and estimated waste material parameter weights. If acceptable knowledge is insufficient for individual bags/packages, actual weights of waste items, residual materials, packaging materials, or waste material parameters shall be recorded.

All visual examination activities shall be documented on video/audio tape and the results of all visual examination shall be documented on visual examination data forms.

Visual examination video tapes of containers which contain classified shapes shall be considered classified information. Visual examination data forms will not be considered classified information.

d.1. Section B3-10a

- All electronic and video data must be stored appropriately to ensure that waste container, sample, and associated QC data are readily retrievable. In the case of classified information, additional security provisions may apply that could restrict retrievability. The additional security provisions will be documented in generator/storage site procedures as outlined in the QAPjP in accordance with prevailing classified information security standards.

e.1. Section B6-1

The Waste Isolation Pilot Plant (**WIPP**) Permittees' Audit and Surveillance Program shall ensure that: 1) the operators of each generator/storage site (**site**) that plan to transport transuranic (**TRU**) mixed waste to the WIPP facility conduct sampling and analysis of wastes in accordance with the current WIPP Waste Analysis Plan (**WAP**) (Permit Attachment B), and 2) the information supplied by each site to satisfy the waste screening and acceptability requirements of Section B-4 of the WAP is being managed properly. The Permittees will conduct these audits and surveillances at each site in accordance with a standard operating procedure (**SOP**). NMED personnel may observe these audits to validate the implementation of WAP requirements (Permit Attachment B) at each site. Only personnel with appropriate U.S. Department of Energy clearances will have access to classified information during audits. Classified information will not be included in audit reports and records. The audit SOP will contain steps for selecting audit personnel, reviewing applicable background information, preparing an audit plan, preparing audit checklists, conducting the audit, developing an audit report, and following up audit deficiencies. A deficiency is any failure to comply with an applicable provision of the WAP. The checklists for each site shall include, at a minimum, the appropriate checklists found in Tables B6-1 through B6-6 for the summary category groups undergoing audit.

**Item 4**

**Addition of HalfPACTs**

## Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
CA	Controlled Area
CAR	Corrective Action Report
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CH	Contact-Handled
DHV	Design Hourly Volume
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
GERT	General Employee Radiological Training
HVAC	Heating, Ventilation and Air Conditioning
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
ICV	Inner Containment Vessel
ID	Identification
NE	Northeast
NFPA	National Fire Protection Act
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NRC	U.S. Nuclear Regulatory Commission
MgO	Magnesium Oxide
OCA	Outer Containment Assembly
OCV	Outer Containment Vessel
PMP	Probable Maximum Precipitation
PMR	Permit Modification Request
PPA	Property Protection Area
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RWP	Radiation Work Permit
SOP	Standard Operating Procedure
SWB	Standard Waste Box
TDOP	Ten Drum Overpack
TRU	Transuranic
TRUDOCK	TRUPACT-II Unloading Dock
TRUPACT-II	Transuranic Packaging Transporter-Type II
TSDf	Treatment, Storage, and Disposal Facility
VOC	Volatile Organic Compound
VHS	Vent Hood System
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WHB	Waste Handling Building
WIPP	Waste Isolation Pilot Plant
WTS	Westinghouse TRU Solutions

WWIS

WIPP Waste Information System

## Overview of the Permit Modification Request

This PMR is being submitted by the DOE, CBFO and WTS, collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1 and 20.4.1.900 NMAC incorporating 40 CFR 270.42. The modification will allow the use of HalfPACT shipping containers in addition to the currently permitted Transuranic Package Transporter-Type II (**TRUPACT-II**). The proposed change does not reduce the ability of the Permittees to provide continued protection to human health or the environment.

The requested modification to the WIPP HWFP and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP HWFP has been identified using a double underline and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP HWFP requirement, Permit Condition I.B.1 for submission of this Class 2 PMR.

1. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)), requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

The proposed modification contains a single proposed change that will allow the management of HalfPACT shipping containers at the WIPP facility in addition to the currently permitted TRUPACT-II. The exact, proposed text changes are found in Attachment A of this PMR, while changes to figures are found in Attachment B. The Certificate of Compliance issued by the U.S. Nuclear Regulatory Commission (**NRC**) for the HalfPACT is included as Attachment C.

2. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.**

The proposed modification is classified as a Class 2 permit modification based on an August 30, 2001 letter from the New Mexico Environment Department (**NMED**) that indicates that the addition of new waste management containers is not a “non-substantive” change and therefore should be processed as a Class 2 modification.

3. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.**

This modification is necessary to allow the WIPP facility to accept a new NRC approved shipping container known as a HalfPACT.

4. **20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the WIPP HWFP that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000, incorporating the CFR, Title 40 (40 CFR Parts 264 and

270). 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. 40 CFR §270.23 is applicable to the WIPP Hazardous Waste Disposal Units (**HWDUs**). This modification does not impact the conditions associated with the HWDUs.

- 5. 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Module I.F of the WIPP HWFP.

## Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Modified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A	✓	
§270.14(b)(1)		General facility description	Attachment A	✓	
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B		✓
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment B		✓
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C	✓	
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D	✓	
	§264.174	Container inspections	Attachment D	✓	
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D	✓	
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		
§270.14(b)(7)	Part 264 Subpart D	Contingency plan requirements	Attachment F	✓	
	§264.51	Contingency plan design and implementation	Attachment F	✓	
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F	✓	
	§264.53	Contingency plan copies	Attachment F		✓
	§264.54	Contingency plan amendment	Attachment F		✓
	§264.55	Emergency coordinator	Attachment F		✓
	§264.56	Emergency procedures	Attachment F	✓	
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		✓
§270.14(b)(8)(i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E	✓	
§270.14(b)(8)(ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E	✓	
§270.14(b)(8)(iii)		Prevention of contamination of water supplies	Attachment E		✓
§270.14(b)(8)(iv)		Mitigation of effects of equipment failure and power outages	Attachment E		✓
§270.14(b)(8)(v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		✓
§270.14(b)(8)(vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
	Part 264 Subpart C	Preparedness and Prevention	Attachment E	✓	
	§264.31	Design and operation of facility	Attachment E	✓	
	§264.32	Required equipment	Attachment E Attachment F		✓
	§264.33	Testing and maintenance of equipment	Attachment D		✓
	§264.34	Access to communication/alarm system	Attachment E		✓



Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Modified Information		
			Section of the HWFP or Permit Application	Yes	No
	§264.35	Required aisle space	Attachment E	✓	
	§264.37	Arrangements with local authorities	Attachment F		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		✓
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G	✓	
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b)(11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Attachment H		✓
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		✓
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		✓
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment I	✓	
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment I		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J	✓	
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment I	✓	
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment I	✓	
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Modified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E	✓	
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		✓
§270.15	§264 Subpart I	Containers	Attachment M1	✓	
	§264.171	Condition of containers	Attachment M1		✓
	§264.172	Compatibility of waste with containers	Attachment M1		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Modified Information		
			Section of the HWFP or Permit Application	Yes	No
	§264.173	Management of containers	Attachment M1	✓	
	§264.174	Inspections	Attachment D Attachment M1		✓
§270.15(a)	§264.175	Containment systems	Attachment M1	✓	
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Attachment E Permit Module II		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Attachment E Permit Module II		✓
	§264.178	Closure	Attachment I		✓
§270.15(e)	§264.179	Air Emission standards	Attachment E Attachment N		✓
§270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
§270.23	Part 264 Subpart X	Miscellaneous units	Attachment M2		✓
§270.23(a)(1)	§264.601	Detailed unit description	Attachment M2		✓
§270.23(a)(2)	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment D Attachment M2 Attachment N		✓
§270.23(a)(3)	§264.603	Post-closure care	Attachment J Attachment J1		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		✓
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		✓
	Part 264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B		✓

## Item 4

### Addition of HalfPACT

#### Description:

This is a modification request to allow the use of HalfPACT shipping containers for transuranic (**TRU**)-mixed waste management at the WIPP facility in addition to the currently permitted TRUPACT-II. The general term "*Contact Handled Packaging*" is added to the Permit and is defined to include both empty TRUPACT-IIs and empty HalfPACTs, or a component thereof. The general term "*Contact Handled Package*" is added to the Permit and is defined to include both TRUPACT-IIs and HalfPACTs and their contents. As appropriate, specific references to TRUPACT-II are replaced by Contact Handled Packaging or Contact Handled Package to be more inclusive. This permit modification request does not change any container storage capacities found in the WIPP HWFP. However, storage capacities in the WIPP HWFP that refer to specific numbers of TRUPACT-IIs have been changed to their volumetric equivalent waste storage capacities to reflect that either TRUPACT-IIs or HalfPACTs may be used.

#### Basis:

A TRUPACT-II can normally hold up to the equivalent of fourteen 55-gallon drums. The trucks used to transport waste to the WIPP can normally haul three TRUPACT-IIs, collectively holding the equivalent of 42 drums. However, some of the 55-gallon drums at generator/storage sites weigh much more than others; these are called "heavy drums". It is not possible to ship a full load of three TRUPACT-IIs containing all heavy drums because the gross weight of the cargo and the truck may exceed the U.S. Department of Transportation (**DOT**) for shipments that do not require an overweight permit. This would necessitate using partially loaded or fewer TRUPACT-IIs when transporting "heavy drums." This results in inefficiencies in the transportation system.

The HalfPACT is a version of the TRUPACT-II that is shorter and lighter. The HalfPACT can hold the equivalent of seven 55-gallon drums, whereas a TRUPACT-II can hold the equivalent of fourteen 55-gallon drums. Because the empty HalfPACT weighs less than an empty TRUPACT-II, a truck can carry three HalfPACTs containing 21 heavy drums, while the same 21 drums contained in TRUPACT-IIs may exceed the DOT requirements for truck weight. Use of HalfPACTs for shipment of "heavy drums" will result in fewer overall shipments.

#### Discussion:

Both the TRUPACT-II and the HalfPACT were developed as NRC Type B packaging to provide double containment for shipment of contact handled (**CH**) TRU wastes. Both packagings consist of an outer containment assembly, an outer containment vessel, and an inner containment vessel. The HalfPACT is a shorter version of the TRUPACT-II. The HalfPACT is a stainless steel and polyurethane foam insulated shipping container. The packaging consists of an unvented, 1/4-inch thick stainless steel inner containment vessel (**ICV**), positioned within an outer containment assembly (**OCA**) consisting of an unvented 1/4-inch thick stainless steel outer containment vessel (**OCV**), an approximate 8-inch thick layer of polyurethane foam, a 1/4-inch thick layer of ceramic fiber paper and a 1/4 to 3/8-

inch thick outer stainless steel shell. The packaging is a right circular cylinder with outside dimensions of approximately 94 inches in diameter and 91 inches in height. The OCA has a domed lid which is secured to the OCA body with a locking ring. The OCV containment seal is provided by a butyl rubber O-ring. The OCV is equipped with a seal test port and a vent port. The ICV is a right circular cylinder with domed ends. The outside dimensions of the ICV are approximately 74 inches diameter and 69 inches height. The ICV lid is secured to the ICV body with a locking ring. The ICV containment seal is provided by a butyl rubber O-ring. The ICV is equipped with a seal test port and a vent port. Spacers are placed in the top and bottom domed ends of the ICV during shipping. The cavity available for the contents is a cylinder of approximately 73 inches in diameter and 45 inches in height. A typical HalfPACT container is shown in Attachment B.

The NRC issued a Certificate of Compliance for the HalfPACT in November 2000 for use in shipping radioactive materials. The HalfPACT Certificate of Compliance allows one seven-pack of 55-gallon drums, one standard waste box (**SWB**), or one four-pack of 85-gallon drums to be shipped in the HalfPACT. The Certification of Compliance is included as Attachment C of this permit modification request.

Because HalfPACTs are scaled-down versions of TRUPACT-IIs, the processes for receiving, opening, and unloading at the WIPP are identical. It is because of this similarity that the generic terms “Contact Handled Package” and “Contact Handled Packaging” can be used to describe these containers in the PMR. These terms are defined in Module I to include HalfPACTs and TRUPACT-IIs.

**Proposed Revised Permit Text:**

a. 1. Module I, Permit Condition I.D.7 (new condition)

Contact Handled Packages - Contact Handled Packages shall be defined to include both TRUPACT-IIs and HalfPACTs and their contents.

b.1. Module III, Table of Contents

III.G.	INSPECTION SCHEDULES AND PROCEDURES	III-4
III.G.1.	Inspection of 55-Gallon Drum Seven-Packs	III-4
III.G.2.	Inspection of Sealed <u>Contact Handled Packages</u> <del>TRUPACT-II Shipping Containers</del>	III-4

b.2. Module III, Table III.A.1

Table III.A.1 - WHB Unit			
Description	Area	Maximum Capacity	Container Equivalent
TRUDOCK Storage Area	4,734 ft <sup>2</sup> (440 m <sup>2</sup> )	530.4 ft <sup>3</sup> (15 m <sup>3</sup> )	Contents of 4 <u>Contact Handled Packages</u> <del>TRUPACT-II</del>
NE Storage Area	2,924 ft <sup>2</sup> (272 m <sup>2</sup> )	1856 ft <sup>3</sup> (52.6 m <sup>3</sup> )	7 loaded facility pallets
SE (Shielded) Storage Area	292.5 ft <sup>2</sup> (27.2 m <sup>2</sup> )	265 ft <sup>3</sup> (7.5 m <sup>3</sup> )	1 loaded facility pallet
Derived Waste Storage Area	48 ft <sup>2</sup> (4.46 m <sup>2</sup> )	66.3 ft <sup>3</sup> (1.88 m <sup>3</sup> )	1 Standard Waste Box
<b>Total</b>	--	<b>2718 ft<sup>3</sup> (77 m<sup>3</sup>)</b>	—

b.3. Module III, Permit Condition III.A.1.c

Storage on facility pallets - the Permittees shall store TRU mixed waste containers unloaded from the Contact Handled Packages ~~Transuranic Package Transporter, Design II (TRUPACT-II or HalfPACT)~~ shipping containers on facility pallets in the WHB Unit, as described in Permit Attachment M1, Section M1-1c(1).

b.4. Module III, Permit Condition III.A.2.a

Storage containers - the Permittees shall store TRU mixed waste in containers specified in Permit Condition II.C.1. These TRU mixed waste containers shall be stored within the sealed Contact Handled Packages ~~TRUPACT-II shipping containers~~ described in Permit Attachment M1.

b.5. Module III, Permit Condition III.A.2.b

Storage locations and quantities - the Permittees shall store TRU mixed waste containers in any location within the Parking Area Unit, as specified in Table III.A.2 below. The Permittees may store quantities of TRU mixed waste containers within sealed Contact Handled Packages

~~TRUPACT-II shipping containers~~ in these locations not to exceed the maximum capacities specified in Table III.A.2 below.

b.6. Module III, Table III.A.2

Table III.A.2 - Parking Area Unit			
Description	Area	Maximum Capacity	Container Equivalent
Parking Area	115,000 ft <sup>2</sup> (10,700 m <sup>2</sup> )	1591 ft <sup>3</sup> (45 m <sup>3</sup> )	12 <del>TRUPACT-IIs</del> <u>Contact Handled Packages</u> containing waste
<b>Total</b>	--	<b>1591 ft<sup>3</sup> (45 m<sup>3</sup>)</b>	–

b.7. Module III, Permit Condition II.A.2.c

Prohibition on opening shipping containers - the Permittees shall keep the Contact Handled Packages ~~TRUPACT-II shipping containers~~ sealed at all times while in the Parking Area Unit.

b.8. Module III, Permit Condition III.A.2.d

Storage time limit - the Permittees shall not store sealed Contact Handled Packages ~~TRUPACT-II shipping containers~~ in the Parking Area Unit for more than fifty-nine (59) days after the date the Inner Containment Vessel (ICV) of the Contact Handled Packages ~~TRUPACT-II shipping container~~ was sealed at the generator site. Prior to storing a sealed Contact Handled Package ~~TRUPACT-II shipping container~~, the Permittees shall verify that the ICV Closure Date for each Contact Handled Package ~~TRUPACT-II shipping container~~ is recorded in the WIPP Waste Information System (**WWIS**) database described in Permit Attachment B.

b.9. Module III, Permit Condition III.A.2.e

Minimum aisle space - the Permittees shall maintain a minimum spacing of 4 ft (1.2 m) between Contact Handled Packages ~~TRUPACT-II shipping containers~~.

b.10. Module III, Permit Condition III.G.2

Inspection of Sealed ~~TRUPACT-II Shipping Containers~~ Contact Handled Packages

The Permittees shall not be required to inspect the contents of sealed Contact Handled Packages ~~TRUPACT-II shipping containers~~ stored in compliance with Permit Condition III.A.2 and Permit Attachment M1, Section M1-1e(2). The Permittees shall attach a clearly legible sign to each Contact Handled Package ~~TRUPACT-II shipping container~~ indicating whether the Contact Handled Package ~~TRUPACT-II shipping container~~ contains TRU mixed waste.

c.1. Permit Attachment A, Section A-4

There are three basic groups of structures associated with the WIPP facility: surface structures, shafts and underground structures. The surface structures accommodate the personnel, equipment, and support services required for the receipt, preparation, and transfer of TRU mixed waste from the surface to the underground. There are two surface locations where TRU mixed waste will be managed. The first includes a portion of the Waste Handling Building (**WHB**), of which 33,175 square feet is designated as the WHB Container Storage Unit (WHB Unit) for TRU mixed waste management. The second area designated for managing TRU mixed waste is the Parking Area Container Storage Unit (Parking Area Unit), an outside container storage area which extends south from the WHB to the rail siding. The Parking Area Unit provides storage space for up to 12 loaded Contact Handled Packages ~~TRUPACT-II shipping containers~~ on an asphalt and concrete surface encompassing approximately 115,000 square feet.

d.1. Permit Attachment B, Introduction and Attachment Highlights

Once the required waste characterization is complete, the generator/storage site will complete a Waste Stream Profile Form to document the results of their characterization activities (Section B-1d). The Waste Stream Profile Forms and the Characterization Information Summary for the waste stream resulting from waste characterization activities shall be transmitted to the Permittees, reviewed for completeness, and screened for acceptance prior to loading any TRU mixed waste into the Contact Handled Packaging ~~Transuranic Package Transporter (TRUPACT-II)~~ at the generator facility, as described in Section B-4. Only TRU mixed waste and TRU waste that has been characterized in accordance with this WAP and that meets the **TSDF-WAC** specified in this Permit will be accepted at the WIPP facility for disposal in a permitted Underground Hazardous Waste Disposal Unit (**HWDU**).

d.2. Permit Attachment B, Section B-4b(1)(i)

- Shipment Summary Report

This report will contain the container IDs of every container in the shipment, listed by Contact Handled Packaging ~~TRUPACT-II~~ number and by assembly number (for seven packs and 4-packs), for every assembly in the Contact Handled Package ~~TRUPACT-II~~. This report is used



by the Permittees to verify containers in a shipment and will be generated on a shipment basis.

d.3. Permit Attachment B, Section B-4b(1)(iii)

An important part of the Permittees' verification process is the Permittees' Audit and Surveillance Program. The focus of this audit program is compliance with this WAP and the Permit. This audit program addresses all waste sampling and analysis activities, from waste stream classification assignment through final loading of the Contact Handled Package ~~TRUPACT-II~~, and ensures compliance with SOPs and the WAP. Audits will assure that containers and their associated documentation are adequately tracked throughout the waste handling process. Operator qualifications will be verified, and QA/QC procedures will be surveyed. A final report that includes generator/storage site audit results and applicable WAP-related corrective action report (**CAR**) resolution will be provided to NMED for approval, and will be kept in the WIPP facility operating record until closure of the WIPP facility.

d.4. Permit Attachment B, Section B-4b(2)

Hazardous Waste Manifest Information:

- Generator/storage site name and EPA ID
- Generator/storage site contact name and phone number
- Quantity of waste
- List of the hazardous waste codes in the shipment
- Listing of all shipping container IDs (~~TRUPACT-II~~ Contact Handled Packaging serial number)
- Signature of authorized generator representative

d.5. Permit Attachment B, Section B-4b(2)(i)

Upon receipt of a TRU mixed waste shipment, the Permittees will make a determination of EPA Uniform Hazardous Waste Manifest completeness and sign the manifest to allow the driver to depart. The Permittees will then make a determination of waste shipment completeness by checking the unique, bar-coded identification number found on each container holding TRU mixed waste against the WWIS database after opening the Contact Handled Package ~~TRUPACT-II~~.

The WWIS links the bar-coded identification numbers of all containers in a specific waste shipment to the waste assembly (for 7-packs and 4-packs) and to the shipment identification

number, which is also written on the EPA Hazardous Waste Manifest. Generators electronically transmit the waste shipment information to the WWIS before the TRU mixed waste shipment is transported. Once a TRU mixed waste shipment arrives, the Permittees verify the identity of each container using the data already in the WWIS.

The WWIS will maintain waste container receipt and emplacement information provided by the Permittees. It will include, among other items, the following information associated with each container of TRU mixed waste:

- Contact Handled Package TRUPACT-II inner containment vessel closure date
- Package (container) receipt date
- Overpack identification number (if appropriate)
- Package (container) emplacement date
- Package (container) emplacement location

The WWIS links the bar-coded identification numbers of all containers in a specific TRU mixed waste shipment to the waste assembly (for 7-packs and 4-packs) and to the shipment identification number, which is also written on the EPA Hazardous Waste Manifest. Generators electronically transmit the waste shipment information to the WWIS before the TRU mixed waste shipment is transported. Once a TRU mixed waste shipment arrives, the Permittees verify the identity of each container (or one container in a bound 7-pack or 4-pack) using the data already in the WWIS.

Discrepancies will be identified during manifest examination and container bar-code WWIS data comparison. A manifest discrepancy is a difference between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste the WIPP facility actually receives. The generator/storage site technical contact (as listed on the manifest) will be contacted to resolve the discrepancy. If the discrepancy is identified prior to the containers being removed from the Contact Handled Package TRUPACT-II, the waste will be retained in the parking area. If the discrepancy is identified after the waste containers are removed from the Contact Handled Packaging TRUPACT-II, the waste will be retained in the Waste Handling Building (**WHB**) until the discrepancy is resolved. Errors on the manifest can be corrected by the WIPP facility with a verbal (followed by a mandatory written) concurrence by the generator/storage site technical contact. All discrepancies that are unresolved within fifteen (15) days of receiving the waste will be immediately reported to the NMED in writing. Notifications to the NMED will consist of a letter describing the discrepancies, discrepancy resolution, and a copy of the manifest. If the manifest discrepancies have not been resolved within thirty (30) days of waste receipt, the shipment will be returned to the generator/storage facility. If it becomes necessary to return waste containers to the generator/storage site, a new EPA Uniform Hazardous Waste Manifest may be prepared by the Permittees.

d.6. Permit Attachment B, Table B-8

**TABLE B-8**  
**WIPP WASTE INFORMATION SYSTEM DATA FIELDS<sup>a</sup>**

Characterization Module Data Fields <sup>b</sup>	
Container ID <sup>c</sup>	Total VOC Sample Date
Generator EPA ID	Total VOC Analysis Date
Generator Address	Total VOC Analyte Name <sup>d</sup>
Generator Name	Total VOC Analyte Concentration <sup>d</sup>
Generator Contact	Total Metal Sample Date
Hazardous Code	Total Metal Analysis Date
Headspace Gas Sample Date	Total Metal Analyte Name <sup>d</sup>
Headspace Gas Analysis Date	Total Metal Analyte Concentration <sup>d</sup>
Headspace Gas Analyte <sup>d</sup>	Semi-VOC Sample Date
Headspace Gas Concentration <sup>d</sup>	Semi-VOC Analysis Date
Headspace Gas Char. Method <sup>d</sup>	Semi-VOC Analyte Name <sup>d</sup>
Total VOC Char. Method <sup>d</sup>	Semi-VOC Concentration <sup>d</sup>
Total Metals Char. Method <sup>d</sup>	Transporter EPA ID
Total Semi-VOC Char. Method <sup>d</sup>	Transporter Name
Item Description Code	Visual Exam Container <sup>e</sup>
Haz. Manifest Number	Waste Material Parameter <sup>d</sup>
NDE Complete <sup>e</sup>	Waste Material Weight <sup>d</sup>
PCB Concentration	Waste Matrix Code
	Waste Matrix Code Group
	Waste Stream Profile Number
Certification Module Data Fields	
Container ID <sup>c</sup>	Handling Code
Container type	
Container Weight	
Contact Dose Rate	
Container Certification date	
Container Closure Date	
Transportation Data Module	
<u>Contact Handled Packaging</u> TRUPACT-Number	Ship Date
Assembly Number <sup>f</sup>	Receive Date
Container IDs <sup>c,d</sup>	
ICV Closure Date	
Disposal Module Data	

**TABLE B-8**  
**WIPP WASTE INFORMATION SYSTEM DATA FIELDS<sup>a</sup>**

Container ID <sup>c</sup>
Disposal Date
Disposal Location

d.6. Permit Attachment B, Table B-8, footnote f

<sup>f</sup> Required for 7-Packs of 55 gal drums or 4-packs of 85-gallon drums to tie all of the drums in that assembly together. This facilitates the identification of waste containers in a shipment without need to breakup the assembly.

e.1. Permit Attachment C, Introduction, footnote 1

<sup>1</sup> The active portion of the facility is the Property Protection Area (**PPA**) as described in Permit Module III. Within this area, the only area where transuranic (**TRU**) mixed wastes are handled outside of the Contact Handled Packaging Transuranic Package Transporter, Type-II (~~**TRUPACT-II**~~) shipping container is inside the Waste Handling Building (**WHB**), the waste hoist, and the underground. Whenever TRU mixed waste is handled, a Controlled Area (**CA**) is established, for the purpose of radiation protection, which limits access to only trained personnel or to untrained personnel (visitors) who are continuously under the escort of trained personnel. CAs are established in accordance with the WIPP Radiation Safety Manual and are managed to limit the radiation exposure to personnel to less than 100 millirem per year. The CA is initially set at the entrances to the Parking Area Container Storage Unit (Parking Area Unit), Waste Handling Building Container Storage Unit (WHB Unit) Bay, and portions of the underground. The boundary of the CA is posted with signs as specified by the Permittees.

f.1. Permit Attachment D, Section D-1b(1)

Containers are used to manage TRU mixed waste at the WIPP facility. These containers are described in Permit Module III. Off-site CH TRU mixed waste will arrive in 55-gallon drums arranged as seven (7)-packs, in 85-gallon drums arranged as four (4)-packs, as Ten Drum Overpacks (**TDOP**), or as standard waste boxes (**SWB**). The waste containers will be visually inspected to ensure that the waste containers are in good condition and that there are no signs that a release has occurred. This visual inspection shall not include the center drums of 7-packs and waste containers positioned such that visual observation is precluded due to the arrangement of waste assemblies on the facility pallets. If waste handling operations should stop for any reason with containers located on the TRUPACT-II Unloading Dock (**TRUDOCK** storage area of the WHB Unit) in the Contact Handled Package ~~TRUPACT-II shipping containers~~, primary waste container inspections could not be accomplished until the containers of waste are removed from the shipping containers.

Inspections will be conducted in the Parking Area Unit at a frequency not less than once

weekly. These inspections are applicable to loaded, and stored Contact Handled Packages ~~TRUPACT-IIs~~. The perimeter fence located at the lateral limit of the Parking Area Unit, coupled with personnel access restrictions into the WHB Unit, will provide the needed security. The perimeter fence and the southern border of the WHB shall mark the lateral limit of the Parking Area Unit. Radiologically controlled area can be established temporarily with barricades. More permanent structures can be installed. The western boundary can be established with temporary barricades since this area is within the perimeter fence. Access to radiologically controlled areas will only be permitted to personnel who have completed General Employee Radiological Training (**GERT**), a program defined by the Permittees, or escorted by personnel who have completed GERT. This program ensures that personnel have adequate knowledge to understand radiological posting they may encounter at the WIPP site. The fence of the Radiologically Controlled Area, south from the WHB airlocks, was moved to provide more maneuvering space for the trucks delivering waste. Since waste to be stored in the Parking Area Unit will be in sealed Contact Handled Packages ~~TRUPACT-II shipping containers~~, there will be no additional requirements for engineered secondary containment systems. Inspections of the Contact Handled Packages ~~TRUPACT-IIs~~ stored in the Parking Area Unit shall be conducted at a frequency no less than once weekly and will focus on the inventory and integrity of the shipping containers and the spacing between trailers carrying the Contact Handled Packages ~~TRUPACT-II shipping containers~~. This spacing will be maintained at a minimum of four feet.

g.1. Permit Attachment E, Section E-1b

During TRU mixed waste handling operations, sufficient room is maintained for unobstructed movement of personnel, fire-protection equipment, spill control equipment, or decontamination equipment to areas in the WHB Unit.

Waste containers will remain inside the Contact Handled Packages ~~TRUPACT-II shipping containers~~ in the Parking Area Unit until TRU mixed waste handlers are prepared to handle them. As shown in Figure M1-1 in Permit Attachment M1, there is ready access to all areas within the WHB Unit where hazardous wastes are handled. Seven-packs and/or SWBs are unloaded from the Contact Handled Package ~~TRUPACT-II shipping container~~ in to the WHB Unit (see Figure M1-12 in Permit Attachment M1). The WHB Unit can handle the unloading of four Contact Handled Packages ~~TRUPACT-II shipping containers~~ at one time.

At all times, written procedures ensure that loaded Contact Handled Packages ~~TRUPACT-II containers~~, facility pallets, 7-packs, 4-packs, SWBs, 85-gallon overpacks, TDOPs, or canisters are managed in the WHB Unit in a manner to prevent obstructing the movement of personnel, fire-protection equipment, spill-control equipment, and decontamination equipment. An aisle space of 44 in. (1.1 m) between loaded facility pallets will be maintained in all waste storage areas of the WHB Unit, and a minimum of 4 ft of isle space will be maintained between Contact Handled Packages ~~TRUPACT-IIs~~ in the outdoor Parking Area Unit.

g.2. Permit Attachment E, Section E-2a

The TRUPACT-II shipping container has a gross loaded weight of 19,265 lbs (8,737 kgs). HalfPACTs have a gross loaded weight of 18,100 lbs (8,210 kgs). The gross loaded weight is defined as the weight of the payload and the weight of the Contact Handled Packaging itself. The Contact Handled Packagings ~~The TRUPACT-II shipping container has~~ have forklift pockets at the bottom of the container specifically for lifting the container with a forklift (see Figure M1-8 in Permit Attachment M1). The 13 ton (11.8 metric tons) electric forklift unloads the Contact Handled Package ~~TRUPACT-II~~ from the trailer and transfers it to an unloading dock in the WHB Unit (see Figure M1-9 in Permit Attachment M1). The unloading dock is designed to accommodate the Contact Handled Package ~~TRUPACT-II container~~ and functions as a work platform, providing TRU mixed waste handling and health physics personnel with easy access to the container during unloading operations.

An overhead 6-ton (5.4-metric ton) crane and adjustable center-of-gravity lift fixture transfer TRU mixed waste containers from the Contact Handled Package ~~TRUPACT-II~~ to the facility pallet on the WHB Unit floor. The facility pallet is a fabricated steel structure designed to securely hold waste containers. Each facility pallet has a rated load capacity of 25,000 lb (11,340 kg). The upper surface of the facility pallet has two recesses sized to accept the waste containers, ensuring that the containers are held in place. Up to four SWBs, four 7-packs, two 4-packs consisting of 85-gallon overpacks, or two TDOPs may be placed on a facility pallet. Each stack of waste containers is strapped down to holding bars in the top reinforcement plate of the facility pallet to avoid spillage during movement. Two rectangular tube openings in the bed allow the facility pallet to be securely lifted by forklift. In order to assure a facility pallet is not overloaded, operationally it will hold the contents of two Contact Handled Packagings ~~TRUPACT-IIs~~, Permit Attachment M1.

g.3. Permit Attachment E, Section E-2b

Whenever TRU mixed waste is outside the WHB Unit, it will be contained in Contact Handled Packages ~~TRUPACT-II shipping containers~~. TRU mixed waste containers are only unloaded from the shipping containers inside the WHB Unit and shipping containers are never opened outside this facility; therefore, TRU mixed waste is not expected to reach the outside environment or other parts of the facility from the TRU mixed waste handling facilities in nonflood circumstances. Flooding of the TRU mixed waste handling facilities is prevented by drainage ditches and berms such that there is no mechanism that might transport TRU mixed waste to the outside environment and between parts of the WIPP facility. Neither is there a mechanism to allow TRU mixed waste to find its way to an area of the WIPP site where it would be carried off site by flood or precipitation waters.

g.4. Permit Attachment E, Section E-2e

- The hood ventilation system, used during the initial opening of Contact Handled Packages ~~the TRUPACT-II shipping container~~, is used to vent any potential release of radioactive

contaminants into the ventilation system of the WHB Unit (Permit Attachment M1).

#### h.1. Permit Attachment F, Section F-1, Waste Description

Wastes may be generated at the WIPP facility as a direct result of managing the TRU and TRU mixed wastes received from the off-site generators. Such generated waste may occur in either the WHB Unit or the Underground. For example, when TRU mixed wastes are received at the WHB Unit, the shipping containers (~~TRUPACT-II~~ Contact Handled Packages) and the TRU mixed waste containers are checked for surface contamination. Under some circumstances,<sup>4</sup> if contamination is detected, the shipping container and/or the TRU mixed waste containers will be decontaminated. In the underground, waste may be generated as a result of radiation control procedures used during monitoring activities. The waste generated from radiation control procedures will be assumed to be TRU and/or TRU mixed waste. Throughout the remainder of this plan, this waste is referred to as "derived waste." All such derived waste will be placed in the rooms in HWDUs along with the TRU mixed waste for disposal.

#### h.2. Permit Attachment F, Section F-1, CH Bay Operations

##### CH Bay Operations

The typical processing rate for CH waste is 14 Contact Handled Packages ~~TRUPACT-IIs~~ per day, and the maximum is 28 per day. Two shifts per day are planned; four days per week. The fifth day is for equipment maintenance with weekends available for more extensive maintenance, when necessary.

Once unloaded from the Contact Handled Package ~~TRUPACT-IIs~~, CH waste containers (7-packs, 4-packs, SWBs, or TDOPs) are placed in one of two positions on the facility pallet. The 7-packs or SWBs are stacked, as they arrive in the Contact Handled Package ~~TRUPACT-II~~, on the facility pallets (one- or two-high, depending on weight considerations). The use of facility pallets will elevate the waste approximately 9.5 inches (in.) (24 centimeters [cm]) from the floor surface. Pallets of waste will then be relocated to the northeast area of the CH bay for normal storage. This storage area will be clearly marked to indicate the lateral limits of the storage area. This storage area will have a maximum capacity of seven facility pallets of waste during normal operations. These pallets will typically be staged in this area for a period of up to five days.

In addition, four Contact Handled Packages ~~TRUPACT-IIs~~, containing up to 530.4 ft<sup>3</sup> of CH TRU waste in containers ~~eight 7-packs or SWBs or four TDOPs~~, may occupy the staging

---

<sup>4</sup>Typically contamination that is less than six square feet in area and less than 2000 disintegrations per minute (dpm) alpha or 20,000 dpm beta/gamma, may be decontaminated. Containers that exceed these thresholds will be returned to the point of origin for decontamination.

positions at the TRUPACT-II Unloading Docks (**TRUDOCK**).

#### h.3. Permit Attachment F, Section F-1, Parking Area Container Storage Unit (Parking Area Unit)

The area extending south from the WHB within the fenced enclosure identified as the Controlled Area on Figure M1-2 is defined as the Parking Area Container Storage Unit. This area provides space for 12 loaded Contact Handled Packages ~~TRUPACT-IIs~~ corresponding to 1,591 ft<sup>3</sup> (45 m<sup>3</sup>) of CH TRU mixed waste. Secondary containment and protection of the waste containers from standing rainwater are provided by the transportation containers.

Twelve Contact Handled Packages containing a maximum of 1,591 ft<sup>3</sup> (45 m<sup>3</sup>) of CH TRU mixed waste can ~~The maximum number of TRUPACT-IIs that will be stored in the Parking Area Unit is 20 percent of the TRUPACT-II fleet. This is equivalent to 12 TRUPACT-IIs, containing a maximum of 24 SWBs or 168 drums of CH TRU mixed waste.~~ The TRUPACT-II safety criteria for Contact Handled Packages require that Contact Handled Packages ~~they~~ be opened and vented at a frequency of at least once every 60 days. During normal operations the maximum residence time of any one container in the Parking Area Unit is typically five days. Therefore, during normal waste handling operations, Contact Handled Packages ~~TRUPACT-IIs~~ will not require venting while located in the Parking Area Unit. Any off-normal event which results in the need to store a waste container in the Parking Area Unit for a period of time approaching fifty-nine (59) days shall be mitigated by returning the shipment to the generator prior to the expiration of the 60 day NRC venting period or by moving the Contact Handled Package ~~TRUPACT-II~~ inside the WHB Unit where the waste will be removed and placed in one of the permitted storage areas.

#### h.4. Permit Attachment F, Section F-1, Containment

Floor areas of the WHB used during off-normal events will be inspected prior to use and weekly while in use. Containers located in the permitted storage areas shall be elevated from the surface of the floor. Facility pallets provide about 9.5 in (24 centimeters [cm]) of elevation from the surface of the floor. TRU mixed waste containers that have been removed from Contact Handled Packaging ~~TRUPACT-II shipping containers~~ shall be stored at a designated storage area inside the WHB so as to preclude exposure to the elements.

Secondary containment at permitted storage areas inside the WHB Unit shall be provided by the floor. The Parking Area Unit and TRUDOCK storage area of the WHB Unit do not require engineered secondary containment, since waste is not stored there unless it is protected by the Contact Handled Packaging ~~TRUPACT-II shipping containers~~. Floor drains, the fire suppression water collection sump, and portable dikes, if needed, will provide containment for liquids that may be generated by fire fighting. Sump capacities and locations are shown in Drawing 41-F-087-014. Residual fire fighting liquids will be placed in containers and managed as described above.



#### h.5. Permit Attachment F, Section F-4d

The WIPP facility is required to control an emergency and to minimize the potential for the occurrence, recurrence, or spread of releases due to the emergency situation, as described in 20.4.1.500 NMAC (incorporating 40 CFR §264.56 (e)). The WIPP Emergency Response procedures utilize the incident mitigation guidelines in NFPA 471, Responding to Hazardous Materials Incidents, with initial response priority being on control, and those actions necessary to ensure confinement and containment (the first line of defense) in the early, critical stages of a spill or leak. The RCRA Emergency Coordinator is responsible for stopping processes and operations when necessary, and removing or isolating containers. TRU mixed waste will remain within the WHB Unit, parked Contact Handled Packages ~~TRUPACT-II containers~~ and the underground HWDU.

#### i.1. Permit Attachment G, Section G-1, Facility Access and Traffic

Access to the facility for personnel, visitors, and trucks carrying supplies and TRU mixed waste is provided through a security checkpoint (vehicle trap). After passing through the security checkpoint, ~~TRUPACT-II~~ TRU mixed waste transport trucks will normally turn right (south) before reaching the Support Building and then left (east) to park in the parking area HWMU just east of the air locks (Figure G-2). Outgoing trucks depart the same way they arrived, normally out of the west end of the parking area, north through the fence gate and out through the vehicle trap. An alternate inbound route is to continue straight ahead from the security checkpoint to the second road and to turn south to enter the truck parking area. The alternate outbound route is also the reverse of this route. Salt transport trucks, which remove mined salt from the Salt Handling Shaft area, will not cross paths with TRU mixed waste transporters; instead, they will proceed from the Salt Handling Shaft northward to the salt pile. Figure G-2 shows surface traffic flow at the WIPP facility.

The site speed limit for motor vehicles is 10 mph (16 kph) and 5 mph (8 kph) for rail movements. Speed limits are clearly posted at the entrance to the site and enforced by security officers. There are no traffic signals. Stop signs are located at the major intersections of roadways with the main east-west road. Safety requirements are communicated to all site personnel via General Employee Training within 30 days of their employment. Employee access to on-site facilities requires an annual refresher course to reinforce the safety requirements. Security officers monitor vehicular traffic for compliance with site restrictions, and provide instructions to off-site delivery shipments. Vehicular traffic other than the waste transporters use the same roads, but there will be no interference because there are two lanes available on the primary and alternate routes for waste shipments. Pedestrian traffic is limited to the sidewalks and prominently marked crosswalks. Site traffic is composed mostly of pickup trucks and electric carts with a frequency of perhaps 10 per hour at peak periods. Emergency vehicles are exercised periodically for maintenance and personnel training, with an average frequency of one each per day. They are used for their intended purpose on an as-required basis.

The traffic circulation system is designed in accordance with American Association of State Highway and Transportation Officials (AASHTO) Site Planning Guides for lane widths, lateral clearance to fixed objects, minimum pavement edge radii, and other geometric features. Objects in or near the roadway are prominently marked.

On-site roads, sidewalks, and paved areas are used for the distribution and storage of vehicles and personnel and are designed to handle all traffic generated by employees, visitors, TRU mixed waste shipments, and movements of operational and maintenance vehicles. The facility entrance and TRU mixed waste haul roads are designed for AASHTO H20-S16 wheel loading. Service roads are designed for AASHTO H10 wheel loading. Access and on-site paved roads are designed to bear the anticipated maximum load of 80,000 lbs (36,287.2 kg), the maximum allowable weight of a truck/trailer carrying loaded Contact Handled Packages ~~TRUPACT-II~~s. The facility is designed to handle an average of five truck trailers per day, each carrying three Contact Handled Packages ~~TRUPACT-II~~s. Outbound transporters with empty shipping containers will match that number daily. This is equivalent to 2,600 TRU mixed waste-carrying vehicles per year.

#### i.2. Permit Attachment G, Section G-1, Waste Handling Building Traffic

CH TRU mixed waste will arrive by tractor-trailer at the WIPP facility in sealed Contact Handled Packages ~~shipping containers (e.g., TRUPACT-II~~s). Upon receipt, security checks, radiological surveys, and shipping documentation reviews will be performed. A forklift will remove the Contact Handled Packages ~~TRUPACT-II~~s and transport them a short distance through an air lock that is designed to maintain differential pressure in the WHB. The forklift will place the shipping containers at one of the two TRUPACT-II unloading docks (TRUDOCK) inside the WHB.

The TRUPACT-II may hold up to two seven-packs, two standard waste boxes (SWB), or one ten-drum overpack (TDOP). A HalfPACT may hold seven 55-gal (208-L) drums, one SWB, or four 85-gallon drums. A six-ton overhead bridge crane will be used to remove the contents of the Contact Handled Package ~~TRUPACT-II~~s. Waste containers will be surveyed for radioactive contamination and decontaminated or returned to the Contact Handled Packaging ~~TRUPACT-II~~s as necessary.

i.3. Permit Attachment G, Table G-1

Traffic Parameter	North Access Road (No. of Vehicles, unless otherwise stated)	South Access Road (No. of Vehicles, unless otherwise stated)	On-Site Waste Haul Roads ( <u>Contact Handled Package</u> <del>TRUPACT-II</del> Traffic)
Average Daily Traffic (ADT) <sup>b</sup>	800	400	6
Design Hourly Volume (DHV) <sup>c</sup>	144	72	NA <sup>g</sup>
Hourly Volume (Max. at Shift Change)	250	125	NA
Distribution (D) <sup>d</sup>	67%	67%	NA
Trucks (T) <sup>e</sup>	2%	0	100%
Design Speed <sup>h,i</sup>	70 mph (113 kph)	60 mph (97 kph)	25 mph (40 kph)
Control of Access <sup>f</sup>	None	None	Full

<sup>a</sup> For WIPP personnel and TRU mixed waste shipments only.

<sup>b</sup> ADT—Estimated number of vehicles travelling in both directions per day.

<sup>c</sup> DHV—A two-way traffic count with directional distribution.

<sup>d</sup> D—The percentage of DHV in the predominant direction of travel.

<sup>e</sup> T—The percentage of ADT comprised of trucks (excluding light delivery trucks).

<sup>f</sup> Control of Access—The extent of roadside interference or restriction of movement.

<sup>g</sup> NA—Not applicable.

<sup>h</sup> mph—miles per hour.

<sup>i</sup> kph—kilometers per hour.

i.4. Permit Attachment G, Figure G-2

Figure G-2 is included in Attachment B

j.1. Permit Attachment I, Section I-1e(2)(b), Decontamination Activities - Surface Container Storage Units

The procedures employed for waste receipt at the WIPP facility minimize the likelihood for any waste spillage to occur outside the WHB. TRU mixed waste is shipped to the WIPP facility in approved shipping containers (~~e.g., TRUPACT-II~~ i.e., Contact Handled Packages) that are not opened until they are inside the WHB. Therefore, it is unlikely that soil in the Parking Area Unit or elsewhere in the vicinity of the WHB will become contaminated with TRU mixed waste

constituents as a result of TRU mixed waste management activities. An evaluation of the soils in the vicinity of the WHB will only be necessary if a documented event resulting in a release has occurred outside the WHB.

j.2. Permit Attachment I, Table I3-2

Step in TRU Mixed Waste Processing	Surface Contamination Survey	Dose Rate Survey	Large Area Wipes <sup>a</sup>
<u>Contact Handled Package TRUPACT</u> Outer Containment Assembly ( <b>OCA</b> ) lid interior and top of Inner Containment Vessel ( <b>ICV</b> ) lid	X		X
<u>Contact Handled Package TRUPACT</u> quick connect and vent port	X		
As ICV lid is raised		X	
ICV lid interior and top of payload	X		X
Payload assembly, guide tubes, standard waste box ( <b>SWB</b> ) connecting devices	X		
As payload assembly is raised, including bottom of payload		X	
After placement of payload on facility pallet	X		X

<sup>a</sup> Surface contamination surveys of Contact Handled Packages TRUPACT-II's are performed in accordance with Procedure WP 12-1100 (Permit Attachment P), which stipulates that all such work be performed under a Radiation Work Permit (**RWP**). The RWP will only stipulate large area wipes when necessary and not as a routine measure.

k.1. Permit Attachment J1, Introduction, Background

Upon receipt of the necessary certifications and permits from the EPA and the New Mexico Environment Department, the Permittees will begin disposal of contact-handled (**CH**) TRU and TRU mixed waste in the WIPP. This waste emplacement and disposal phase will continue until the regulated capacity of the repository of 6,200,000 cubic feet (175,588 cubic meters) of TRU and TRU mixed waste has been reached, and as long as the Permittees comply with the requirements of the Permit. For the purposes of this Permit Attachment, this time period is assumed to be 25 years. The waste will be shipped from 10 DOE facilities across the country in specially designed transportation containers certified by the Nuclear Regulatory Commission, TRUPACT-II's for CH TRU waste. The transportation routes from these facilities to the WIPP have been predetermined. The CH TRU waste will be packaged in 55-gallon (208-liter) or 85-gallon (320-liter) steel drums and/or standard waste boxes (**SWBs**). An SWB

is a steel container having a free volume of approximately 65 cubic feet (1.8 cubic meters). Figure J1-2 shows the general arrangement of a seven-pack of drums and an SWB as received in the TRUPACT-II.

#### I.1. Permit Attachment M1, List of Figures

M1-1	Waste Handling Building - Container Storage Unit
M1-2	Parking Area - Container Storage Unit
M1-3	Standard 55-Gallon Drum (Typical)
M1-4	Standard Waste Box
M1-5	Ten-Drum Overpack
M1-6	85-Gallon Overpack
M1-7	Waste Handling Building - Facility Pallet Temporary Storage Area
M1-8a	TRUPACT-II Shipping Container for CH Transuranic Mixed Waste (Schematic)
<u>M1-8b</u>	<u>HalfPACT Shipping Container for CH Transuranic Mixed Waste (Schematic)</u>
M1-9	Configuration of Contact-Handled Transuranic Mixed Waste Unloading Docks in the Waste Handling Building
M1-10	Facility Pallet for Seven-Pack of Drums
M1-11	Conveyance Loading Car with Seven-Packs and Facility Pallet
M1-12	TRUPACT-II Containers on Trailer
M1-13	WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram
M1-14	Waste Handling Building Plan (Ground Floor)

#### I.2. Permit Attachment M1, Section M1-1c(1)

The Waste Handling Building (**WHB**) is the surface facility where TRU mixed waste handling activities will take place (Figure M1-1). The WHB has a total area of approximately 84,000 square feet (ft<sup>2</sup>) (7,804 square meters (m<sup>2</sup>)) of which 33,175 ft<sup>2</sup> (3,082 m<sup>2</sup>) are designated for the waste handling and container storage of CH TRU mixed waste, as shown in Figure M1-1. This area is being permitted as the WHB Unit. The concrete floors are sealed with a coating that is sufficiently impervious to the chemicals in TRU mixed waste to meet the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.175(b)(1)).

The Contact Handled Packages Transuranic Package Transporters, Type II (TRUPACT-IIs) used to transport TRU mixed waste containers will be received through one of three air-lock entries to the CH Bay of the WHB Unit. The WHB heating, ventilation and air conditioning (**HVAC**) system maintains the interior of the WHB at a pressure lower than the ambient atmosphere to ensure that air flows into the WHB, preventing the inadvertent release of any hazardous or radioactive constituents contamination as the result of a contamination event. The doors at each end of the air lock are interlocked to prevent both from opening simultaneously and equalizing CH Bay pressure with outside atmospheric pressure. The CH Bay houses two TRUPACT-II Docks (**TRUDOCKs**), each equipped with overhead cranes for opening and unloading Contact Handled Packages ~~TRUPACT-IIs~~. The TRUDOCKs are within

the TRUDOCK Storage Area of the WHB Unit.

The cranes are rated to lift the Contact Handled Packaging TRUPACT-II lids as well as their contents. The cranes are designed to remain on their tracks and hold their load even in the event of a design-basis earthquake.

Upon receipt and removal of CH TRU mixed waste containers from the Contact Handled Packaging TRUPACT-IIs, the waste containers are required to be in good condition as provided in Permit Module III. The waste containers will be visually inspected for physical damage (severe rusting, apparent structural defects, signs of pressurization, etc.) and leakage to ensure they are good condition prior to storage. Waste containers will also be checked for external surface contamination. If a primary waste container is not in good condition, the Permittees will overpack the container. The Permittees may initiate local decontamination, return unacceptable containers to a DOE generator site or send the Contact Handled Package TRUPACT-II to the third party contractor. Decontamination activities will not be conducted on containers which are not in good condition, or which are leaking. If local decontamination activities are opted for, the work will be conducted in the WHB Unit on the TRUDOCK. These processes are described in Section M1-1d. The area previously designated as the Overpack and Repair Room will not be used for TRU mixed waste management in any instances.

Once unloaded from the Contact Handled Packaging TRUPACT-IIs, CH TRU mixed waste containers (7-packs, 4-packs, SWBs, or TDOPs) are placed in one of two positions on the facility pallet. The 7-packs or SWBs are stacked, ~~as they arrive in the TRUPACT-II,~~ on the facility pallets (one- or two-high, depending on weight considerations). The use of facility pallets will elevate the waste approximately 9.5 in. (24 cm) from the floor surface. Pallets of waste will then be relocated to the Northeast (**NE**) Storage Area of the WHB Unit for normal storage. This NE Storage Area, which is shown in Figure M1-7, will be clearly marked to indicate the lateral limits of the storage area. This NE Storage Area will have a maximum capacity of seven pallets (1,856 ft<sup>3</sup> [52.6 m<sup>3</sup>]) of TRU mixed waste containers during normal operations. These pallets will typically be staged in this area for a period of up to five days.

In addition, four Contact Handled Packages TRUPACT-IIs, containing up to eight 7-packs, or eight SWBs, or four TDOPs, or four 4-packs, may occupy the staging positions at the TRUDOCK Storage Area of the WHB Unit. If waste containers are left in this area, they will be in the Contact Handled Package TRUPACT-II shipping container with or without the shipping container lids removed. The maximum volume of waste in containers in four Contact Handled Packages TRUPACT-IIs is 530.4 ft<sup>3</sup> (15 m<sup>3</sup>).

The Derived Waste Storage Area of the WHB Unit is on the north wall of the CH Bay. This area will contain containers up to the volume of a SWB for collecting derived waste from all TRU mixed waste handling processes in the WHB Unit. The Derived Waste Storage Area is being permitted to allow containers in size up to a SWB to be used to accumulate derived waste. The volume of TRU mixed waste stored in this area will be up to 66.3 ft<sup>3</sup> (1.88 m<sup>3</sup>). The derived waste containers in the Derived Waste Storage Area will be stored on standard drum

pallets, which are polyethylene trays with a grated deck, which will elevate the derived waste containers approximately 6 in. (15 cm) from the floor surface, and provide approximately 50 gal (190 L) of secondary containment capacity.

An area has also been designated for the temporary storage of waste containers for which manifest discrepancies were noted after the Contact Handled Package was TRUPACT-II ~~were~~ opened. Discrepant payloads will be placed either in the Shielded Storage Area of the WHB Unit on a facility pallet or inside a Contact Handled Package a TRUPACT-II, depending on when the discrepancy is discovered. In either case the waste containers will be elevated approximately six inches from the floor surface. The storage capacity of this area is one pallet load of TRU mixed waste containers (i.e., 4 SWBs, 2 TDOPs, or 28 drums, or combinations of all three).

Aisle space shall be maintained in all WHB Unit TRU mixed waste storage areas. The aisle space shall be adequate to allow unobstructed movement of fire-fighting personnel, spill-control equipment, and decontamination equipment that would be used in the event of an off-normal event. An aisle space of 44 in. (1.1 m) between facility pallets will be maintained in all WHB Unit TRU mixed waste storage areas.

The WHB has been designed to meet DOE design and associated quality assurance requirements. Table M1-1 summarizes basic design requirements, principal codes, and standards for the WIPP facility. Appendix D2 of the WIPP RCRA Part B Permit Application (DOE, 1997a) provided engineering design-basis earthquake and tornado reports. The design-basis earthquake report provides the basis for seismic design of WIPP facility structures, including the WHB foundation. The WIPP design-basis earthquake is 0.1 g. The WIPP design-basis tornado includes a maximum windspeed of 183 mi per hr (mi/hr) (294.5 km/hr), which is the vector sum of all velocity components. It is also limited to a translational velocity of 41 mi/hr (66 km/hr) and a tangential velocity of 124 mi/hr (200 km/hr). Other parameters are a radius of maximum wind of 325 ft (99 m), a pressure drop of 0.5 lb per in.<sup>2</sup> (3.4 kilopascals [kPa]), and a rate-of-pressure drop of 0.09 lb/in.<sup>2</sup>/s (0.6 kPa/s). A design-basis flood report is not available because flooding is not a credible phenomenon at the WIPP facility. Design calculations for the probable maximum precipitation (**PMP**) event, provided in Appendix D7 of the WIPP RCRA Part B Permit Application (DOE, 1997a), illustrated run-on protection for the WIPP facility.

The following are the major pieces of equipment that will be used to manage CH TRU waste in the container storage units. A summary of equipment capacities, as required by 20.4.1.500 NMAC is included in Table M1-2.

#### TRUPACT-II Type B Packaging Shipping Containers

The TRUPACT-II (Figure M1-8a) is a double-contained cylindrical shipping container 8 ft (2.4 m) in diameter and 10 ft (3 m) high. It meets NRC DOT Type B shipping container requirements and has successfully completed rigorous container-integrity tests. The payload consists of approximately 7,265 lbs (3,300 kg) gross weight in up to fourteen 55-gal (208-L)

drums, two SWBs, or one TDOP.

#### HalfPACT Type B Packaging

The HalfPACT (Figure M1-8b) is a double-contained right circular cylinder shipping container 7.8 ft (2.4 m) in diameter and 7.6 ft (2.3 m) high. It meets NRC Type B shipping container requirements and has successfully completed rigorous container-integrity tests. The payload consists of approximately 7,600 lbs (3,500 kg) gross weight in up to seven 55-gal (208-L) drums, one SWB, or four 85-gallon drums.

#### Unloading Docks

Each TRUDOCK is designed to accommodate up to two Contact Handled Packages ~~TRUPACT-II shipping containers~~. The TRUDOCK functions as a work platform, providing TRU mixed waste handling personnel easy access to the container during unloading operations (see Figure M1-9) (Also see Drawing 41-M-001-W in Appendix D3 of the WIPP RCRA Part B Permit Application (DOE, 1997a)).

#### Forklifts

Forklifts will be used to transfer the Contact Handled Packages ~~TRUPACT-II shipping containers~~ into the WHB Unit and to transfer palletized CH TRU mixed waste containers to the conveyance loading car. Another forklift will be used for general-purpose transfer operations. This forklift has attachments and adapters to handle individual TRU mixed waste containers, if required.

#### Cranes and Adjustable Center-of-Gravity Lift Fixtures

At each TRUDOCK, an overhead bridge crane is used with a specially designed lift fixture for disassembly of the Contact Handled Packages ~~TRUPACT-IIs~~. Separate lifting attachments have been specifically designed to accommodate SWBs and TDOPs. The lift fixture, attached to the crane, has built-in level indicators and two counterweights that can be moved to adjust the center of gravity of unbalanced loads and to keep them level.

#### Facility Pallets

The facility pallet is a fabricated steel unit designed to support 7-packs of drums, SWBs, TDOPs, or groups of overpack drums, and has a rated load of 25,000 lbs. (11,430 kg). The facility pallet will accommodate up to four 7-packs of drums or four SWBs (in two stacks of two units), two TDOPs, two groups of overpack drums (maximum of four drums per group), or any combination thereof. Loads are secured to the facility pallet during transport to the emplacement area. Facility pallets are shown in Figure M1-10. Fork pockets in the side of the pallet allow the facility pallet to be lifted and transferred by forklift to prevent direct contact between TRU mixed waste containers and forklift tines. This arrangement reduces the



potential for puncture accidents. WIPP facility operational documents define the operational load of the facility pallet to ensure that the rated load of a facility pallet is not exceeded as the contents of two TRUPACT-IIs. Since the maximum TRUPACT-II load is 7,265 lbs (3,300 kg), the maximum weight of a loaded facility pallet is less than 19,000 lbs (8,630 kg), including the pallet weight.

#### Conveyance Loading Car

The conveyance loading car is an electric vehicle that operates on rails. It is designed with a flat bed that has adjustable height capability and will be used to transfer the facility pallets on or off the pallet support stands in the waste hoist cage by raising and lowering the bed (see Figure M1-11).

### I.3. Permit Attachment M1, Section M1-1c(2)

The parking area south of the WHB (see Figure M1-2) will be used for storage of waste containers within sealed shipping containers awaiting unloading. The area extending south from the WHB within the fenced enclosure identified as the Controlled Area on Figure M1-2 is defined as the Parking Area Unit. The Parking Area Unit provides storage space for 12 loaded Contact Handled Packages TRUPACT-IIs, corresponding to 1,591 ft<sup>3</sup> (45 m<sup>3</sup>) of CH TRU mixed waste. Secondary containment and protection of the waste containers from standing liquid are provided by the Contact Handled Packaging TRUPACT-II transportation containers. Wastes placed in the Parking Area Unit will remain sealed in their Contact Handled Packages TRUPACT-II transportation containers at all times while in this area.

The maximum number of TRUPACT-II Contact Handled Packages that will be stored in the parking area is twelve, containing a maximum of 1,591 ft<sup>3</sup> (45m<sup>3</sup>) of CH TRU mixed waste. ~~20 percent of the TRUPACT-II fleet. This is equivalent to 12 TRUPACT-IIs, containing a maximum of 24 SWBs or 168 drums of CH TRU mixed waste.~~ The Nuclear Regulatory Commission (NRC) Certificate of Compliance requires that sealed Contact Handled Packages TRUPACT-IIs, which contain waste, be vented every 60 days to avoid unacceptable levels of internal pressure. During normal operations the maximum residence time of any one container in the Parking Area Unit is typically five days. Therefore, during normal waste handling operations, no Contact Handled Packages TRUPACT-IIs will require venting while located in the Parking Area Unit. Any off-normal event which results in the need to store a waste container in the Parking Area Unit for a period of time approaching fifty-nine (59) days shall be handled in accordance with Section M1-1e(2) of this Permit Attachment. Under no circumstances shall Contact Handled Packages a TRUPACT-II be stored in the Parking Area Unit for more than fifty-nine (59) days after the date that the inner containment vessel of the Contact Handled Package TRUPACT-II shipping container was sealed at the generator site.

#### I.4. Permit Attachment M1, Section M1-1d

20.4.1.500 NMAC (incorporating 40 CFR §264.173) requires that containers be managed in a manner that does not result in spills or leaks. Containers are required to be closed at all times, unless waste is being placed in the container or removed. Because containers at the WIPP will contain radioactive waste, safety concerns require that containers be continuously vented to obviate the buildup of gases within the container. These gases could result from radiolysis, which is the breakdown of moisture by radiation. The vents, which are nominally 0.75 in. (1.9 centimeters [cm]) in diameter, are generally installed on or near the lids of the containers. These vents are filtered so that gas can escape while particulates are retained.

TRU mixed waste containers, containing off-site waste, are never opened at the WIPP facility. Derived waste containers are kept closed at all times unless waste is being added or removed.

The typical processing rate for CH TRU mixed waste is 14 Contact Handled Packages ~~TRUPACT-II~~s per day, or seven pallet loads, and the maximum is 28 per day. Two shifts per day are planned, four days per week. The fifth day is for equipment maintenance with weekends available for more extensive maintenance, when necessary.

#### I.5. Permit Attachment M1, Section M1-1d(2)

CH TRU mixed waste containers will arrive by tractor-trailer at the WIPP facility in sealed shipping containers (~~i.e., e.g.,~~ TRUPACT-IIs or HalfPACTs) (see Figure M1-12), at which time they will undergo security and radiological checks and shipping documentation reviews. A forklift will remove the Contact Handled Packages ~~TRUPACT-II~~s and will transport them a short distance through an air lock that is designed to maintain differential pressure in the WHB. The forklift will place the shipping containers at one of the two TRUDOCKs in the TRUDOCK Storage Area of the WHB Unit, where an external survey of the Contact Handled Package ~~TRUPACT-II~~ inner vessel (see Figures M1-8a and M1-8b) will be performed as the outer containment vessel lid is lifted. The inner vessel lid will be lifted under the TRUDOCK Vent Hood System (**VHS**), and the contents will be surveyed during and after this lift. The TRUDOCK VHS<sup>1</sup> is attached to the Contact Handled Package ~~TRUPACT-II~~ to provide atmospheric control and confinement of headspace gases at their source. It also prevents potential personnel exposure and facility contamination due to the spread of radiologically contaminated airborne dust particles and minimizes personnel exposure to VOCs.

In the event a large area contamination is discovered within a Contact Handled Package ~~TRUPACT-II~~ during unloading, the waste will be left in the Contact Handled Package ~~TRUPACT-II~~ and the shipping container will be resealed. The DOE considers such contamination problems the responsibility of the shipping site. Therefore, the shipper will have several options for disposition. These are as follows:

- The Contact Handled Package TRUPACT-II can be returned to the shipper for decontamination and repackaging of the waste. Such waste would have to be re-approved prior to shipment to the WIPP.
- Shipment to another DOE site for management in the event the original shipper does not have suitable facilities for decontamination. If the receiving site wishes to return the waste to WIPP, the site will have to meet the characterization requirements of the WAP.
- The waste could go to a third (non-DOE) party for decontamination. In such cases, the repaired shipment would go to the original shipper and be recertified prior to shipment to the WIPP.

Written procedures specify materials, protocols, and steps needed to put an object into a safe configuration for decontamination of surfaces. A RWP will always be prepared prior to decontamination activities. TRU mixed waste products from decontamination will be managed as derived waste.<sup>5</sup>

The TRUPACT-II may hold up to two 7-packs, two SWBs, or one TDOP. A HalfPACT may hold seven 55-gal (208-L) drums, one SWB, or four 85-gallon drums. An overhead bridge crane will be used to remove the contents of the Contact Handled Package TRUPACT-II and place them on a facility pallet. The containers will be visually inspected for physical damage (severe rusting, apparent structural defects, signs of pressurization, etc.) and leakage to ensure they are good condition prior to storage. Waste containers will also be checked for external surface contamination. If a primary waste container is not in good condition, the Permittees will overpack the container.

#### I.6. Permit Attachment M1, Section M1-1e(1)

The 7-packs and SWBs in storage will be visually inspected prior to each movement and, at a minimum, weekly, to ensure that the waste containers are in good condition and that there are no signs that a release has occurred. Waste containers will be visually inspected for physical damage (severe rusting, apparent structural defects, signs of pressurization, etc.) and leakage. If a primary waste container is not in good condition, the Permittees will overpack the container. This visual inspection shall not include the center drums of 7-packs and waste containers positioned such that visual observation is precluded due to the arrangement of waste assemblies on the facility pallets. If waste handling operations should stop for any reason with containers located in the TRUDOCK Storage Area in the Contact Handled Package TRUPACT-II shipping containers, primary waste container inspections will not be accomplished until the containers of waste are removed from the Contact Handled Package TRUPACT-II. If the lid to the Contact Handled Package TRUPACT-II inner container vessel is removed, radiological checks (swipes of Contact Handled Package TRUPACT-II inner surfaces) will be used to determine if there is contamination within the Contact Handled Package TRUPACT-II. Such contamination could indicate a waste container leak or spill.

Using radiological surveys, a detected spill or leak of a radioactive contamination from a waste container will also be assumed to be a hazardous waste spill or release.

Inspections of the Shielded Storage Area designated for holding waste while manifest discrepancies are resolved, are performed prior to use and weekly thereafter, so long as waste containers reside in the Shielded Storage Area. Waste containers residing within a Contact Handled Package TRUPACT-II are not inspected, as described in the first bullet in Section M1-1e(2).

#### I.7. Permit Attachment M1, Section M1-1e(2)

Inspections will be conducted in the Parking Area Unit at a frequency not less than once weekly. These inspections are applicable to loaded, stored Contact Handled Packages TRUPACT-IIs. The perimeter fence located at the lateral limit of the Parking Area Unit, coupled with personnel access restrictions into the WHB, will provide the needed security. The perimeter fence and the southern border of the WHB shall mark the lateral limit of the Parking Area Unit (Figure M1-2). Inspections of the Contact Handled Packages TRUPACT-IIs stored in the Parking Area Unit will focus on the inventory and integrity of the shipping containers and the spacing between Contact Handled Packages TRUPACT-II shipping containers. This spacing will be maintained at a minimum of four feet.

Contact Handled Packages located in the Parking Area Unit Loaded TRUPACT-IIs will be inspected weekly during use and prior to each reuse.

Inspection of waste containers is not possible when the containers are in their shipping container (i.e., e.g., TRUPACT-II or HalfPACTs). Inspections can be accomplished by bringing the shipping containers into the WHB Unit and opening them and lifting the waste containers out for inspection. The DOE, however, believes that removing containers strictly for the purposes of inspection results in unnecessary worker exposures and subjects the waste to additional handling. The DOE has proposed that waste containers need not be inspected at all until they are ready to be removed from the shipping container for emplacement underground. Because shipping containers are sealed and are of robust design, no harm can come to the waste while in the shipping containers and the waste cannot leak or otherwise be released to the environment. Contact Handled Packages TRUPACT-II shipping containers shall be opened every 60 days for the purposes of venting, so that the longest waste would be uninspected would be for 60 days from the date that the inner containment vessel of the Contact Handled Package TRUPACT-II shipping container was closed at the generator site. Venting Contact Handled Packages the TRUPACT-II shipping containers involves removing the outer lid and installing a tool in the port of the inner lid.

The following strategy will be used for inspecting waste containers that will be retained within their shipping containers for an extended period of time:

- If the reason for retaining the TRU mixed waste containers in the shipping container

is due to an unresolved manifest discrepancy, the DOE will return the shipment to the generator prior to the expiration of the 60 day NRC venting period or within 30 days after receipt at the WIPP, whichever comes sooner. In this case, no inspections of the internal containers will be performed. The stored Contact Handled Package TRUPACT-II will be inspected weekly as described above.

- If the reason for retaining the TRU mixed waste containers in the Contact Handled Package TRUPACT-II is due to an equipment malfunction that prevents unloading the waste in the WHB Unit, the DOE will return the shipment to the generator prior to the expiration of the 60 day NRC venting period. In this case, the DOE would have to ship the TRU mixed waste containers back with sufficient time for the generator to vent the shipment within the 60 day limit. In this case, no inspections of the internal containers will be performed. The stored Contact Handled Package TRUPACT-II will be inspected weekly as described above.
- If the reason for retaining the TRU mixed waste containers is due to an equipment malfunction that prevents the timely movement of the waste containers into the underground, the waste containers will be kept in the Contact Handled Package TRUPACT-II until day 30 (after receipt at the WIPP) or the expiration of the 60 day limit, whichever comes sooner. At that time the Contact Handled Package TRUPACT-II will be moved into the WHB and the TRU mixed waste containers removed and placed in one of the permitted storage areas in the WHB Unit. If there is no additional space within the permitted storage areas of the WHB Unit, the DOE will discuss an emergency permit with the NMED for the purposes of storing the waste elsewhere in the WHB Unit. Waste containers will be inspected when removed from Contact Handled Packaging the TRUPACT-II and weekly while in storage in the WHB Unit. Contact Handled Packages TRUPACT-IIs will be inspected weekly while they contain TRU mixed waste containers as discussed above.

#### I.8. Permit Attachment M1, Section M1-1f

During normal operations, the floor of the storage areas within the WHB Unit shall be visually inspected on a weekly basis to verify that it is in good condition and free of cracks and gaps. Floor areas of the WHB Unit in use during off-normal events will be inspected prior to use and weekly thereafter. All TRU mixed waste containers located in the permitted storage areas shall be elevated at least 6 in. (15 cm) from the surface of the floor. TRU mixed waste containers that have been removed from Contact Handled Packaging the TRUPACT-II shipping containers shall be stored at a designated storage area inside the WHB Unit so as to preclude exposure to the elements.

Secondary containment at the NE Storage Area and the Shielded Storage Area inside the WHB Unit shall be provided by the WHB Unit floor (See Figure M1-1). The WHB Unit is engineered such that during normal operations, the floor capacity is sufficient to contain liquids upon release. Secondary Containment at the Derived Waste Storage Area of the WHB Unit

will be provided by a polyethylene standard drum pallet. The Parking Area Unit and TRUDOCK Storage Area of the WHB Unit require no engineered secondary containment since no waste is to be stored there unless it is protected by Contact Handled Packaging ~~the TRUPACT-II shipping containers~~.

I.9. Permit Attachment M1, Section M1-1f(2), Parking Area Unit

Containers of TRU mixed waste to be stored in the Parking Area Unit will be in Contact Handled Packages ~~TRUPACT-II shipping containers~~. There will be no additional requirements for engineered secondary containment systems.

I.10. Permit Attachment M1, Section M1-1i

The WHB Unit is located indoors which prevents run-on from a precipitation event. In addition, the containers are stored on facility pallets or standard drum pallets, which elevate the CH TRU mixed waste containers at least 6 in. (15 cm) off the floor, or in Contact Handled Packages ~~TRUPACT-II shipping containers~~, so that any firewater released in the building will not pool around containers. In the Parking Lot Unit, the containers of TRU mixed waste are always in Contact Handled Packages ~~TRUPACT-II shipping containers~~ which protect them from precipitation and run on. Therefore, the WIPP container storage units will comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.175(b)(4)).

I.11. Permit Attachment M1, Table M1-2

CAPACITIES FOR EQUIPMENT	
CH Bay overhead bridge crane	12,000 lbs.
CH Bay forklifts	26,000 lbs.
Facility Pallet	25,000 lbs.
Adjustable center-of-gravity lift fixture	10,000 lbs.
Conveyance Loading Car	70,000 lbs.
MAXIMUM GROSS WEIGHTS OF CONTAINERS	
Seven-pack of 55-gallon drums	7,000 lbs.
Four-pack of 85-gallon drums	4,500 lbs.
Ten-drum overpack	6,700 lbs.
Standard waste box	4,000 lbs.
MAXIMUM NET EMPTY WEIGHTS OF EQUIPMENT	
TRUPACT-II	13,140 lbs.
<u>HalfPACT</u>	<u>10,500 lbs.</u>
Adjustable center of gravity lift fixture	2,500 lbs.
Facility pallet	4,120 lbs.

I.12. Permit Attachment M1, Figure M1-8a

Figure M1-8a is included in Attachment B

I.13. Permit Attachment M1, Figure M1-8b

Figure M1-8b is included in Attachment B

I.14. Permit Attachment M1, Figure M1-13

Figure M1-13 is included in Attachment B

m.1. Permit Attachment M2, Section M2-2a(1), Facility Pallets

The facility pallet is a fabricated steel unit designed to support 7-packs of drums, SWBs, ten-drum overpacks (**TDOPs**), or groups of overpack drums, and has a rated load of 25,000 pounds (lbs.) (11,430 kilograms (kg)). The facility pallet will accommodate up to four 7-packs of drums or four SWBs (in two stacks of two units), two TDOPs, or two groups of overpack drums (maximum of four drums per group). Loads are secured to the facility pallet during transport to the emplacement area. Facility pallets are shown in Figure M2-3. Fork pockets in the side of the pallet allow the facility pallet to be lifted and transferred by forklift to prevent direct contact between TRU mixed waste containers and forklift tines. This arrangement reduces the potential for puncture accidents. WIPP facility operational documents define the operational load of the facility pallet to ensure that the rated load of a facility pallet is not exceeded. ~~as the contents of two Transuranic Package Transporter, Type IIs (**TRUPACT-IIs**). Since the maximum TRUPACT-II load is 7,265 lbs (3,300 kg), the maximum weight of a loaded facility pallet is less than 19,000 lbs (8,630 kg), including the pallet weight.~~

m.2. Permit Attachment M2, Section M2-2b

CH TRU mixed waste containers will arrive by tractor-trailer at the WIPP facility in sealed shipping containers (~~i.e., e.g.,~~ TRUPACT-IIs or HalfPACTs), at which time they will undergo security and radiological checks and shipping documentation reviews. The trailers carrying the shipping containers will be stored temporarily at the Parking Area Container Storage Unit (Parking Area Unit). A forklift will remove the Contact Handled Packages ~~TRUPACT-IIs~~ from the transport trailers and will transport them into the Waste Handling Building Container Storage Unit for unloading of the waste containers. Each TRUPACT-II may hold up to two 7-packs, two SWBs, or one TDOP. Each HalfPACT may hold up to seven 55-gal (208-L) drums, one SWB, or four 85-gallon drums. An overhead bridge crane will be used to remove the waste containers from the Contact Handled Packaging ~~TRUPACT-II~~ and place them on a facility pallet. Each facility pallet has two recessed pockets to accommodate two sets of 7-packs, two sets of 4-packs or two SWBs stacked two-high, or two TDOPs. Each stack of waste containers will be secured prior to transport underground (see Figure M2-3). A forklift will transport the loaded facility pallet to the conveyance loading car inside the conveyance loading

room adjacent to the Waste Shaft. The conveyance loading car will be driven onto the waste hoist deck, where the loaded facility pallet will be transferred to the waste hoist, and the loading car will be backed off. Containers of CH TRU waste (55-gal (208 L) drums, SWBs, 85-gal (321 L) drums, and TDOPs) can be handled individually, if needed, using the forklift and lifting attachments (i.e., drum handlers, parrot beaks).

Because the emplacement of CH TRU mixed waste into the HWDUs will typically be in the order received and unloaded from the Contact Handled Packaging TRUPACT-Hs, 7-packs of drums, SWBs, TDOPs, and 85-gal (321-L) overpack containers will be emplaced as they arrive (except that 85-gal (321-L) overpacks will only be placed on the top row in the repository). There is no specification for the amount of space to be maintained between the waste containers themselves, or between the waste containers and the walls. Containers will be stacked in the best manner to provide stability for the stack (which is up to three containers high) and to make best use of available space. It is anticipated that the space between the wall and the container could be from 8 to 18 in. (20 to 46 cm). This space is a function of disposal room wall irregularities, container type, and sequence of emplacement. Bags of backfill will occupy some of this space. Space is required over the stacks of containers to assure adequate ventilation for waste handling operations. A minimum of 16 in. (41 cm) was specified in the Final Design Validation Report (Appendix D1, Chapter 12 of the WIPP RCRA Part B Permit Application (DOE, 1997)) to maintain air flow. Typically, the space above a stack of containers will be 36 to 48 in. (90 to 122 cm). However 18 in. (0.45 m) will contain backfill material consisting of bags of Magnesium Oxide (MgO). Figure M2-8 shows a typical container configuration, although this figure does not mix containers on any row. Such mixing, while inefficient, will be allowed to assure timely movement of waste into the underground. No aisle space will be maintained for personnel access to emplaced waste containers. No roof maintenance behind stacks of waste is planned.



m.3. Permit Attachment M2, Table M2-1

CAPACITIES FOR EQUIPMENT	
Facility Pallet	25,000 lbs.
Conveyance Loading Car	36,000 lbs.
Underground transporter	28,000 lbs.
Underground fork lift	12,000 lbs.
MAXIMUM GROSS WEIGHTS OF CONTAINERS	
Seven-pack of 55-gallon drums	7,000 lbs.
Four-pack of 85-gallon drums	4,500 lbs.
Ten-drum overpack	6,700 lbs.
Standard waste box	4,000 lbs.
MAXIMUM NET EMPTY WEIGHTS OF EQUIPMENT	
TRUPACT-II	13,140 lbs.
<u>HalfPACT</u>	<u>10,500 lbs</u>
Facility pallet	4,120 lbs.

m.4. Permit Attachment M2, Figure M2-12

Figure M2-12 is included in Attachment B

n.1. Permit Attachment O, Part XII, Process-Codes and Design Capacities (continued)

[Note: A signed copy of the modified Part A Permit Application will be provided to NMED following approval of the PMR.]

The process design capacity for the miscellaneous unit (composed of ten underground areas in the geologic repository) shown in Section XII B, is for the maximum amount of waste that may be received from off-site generators plus the maximum expected amount of derived wastes that may be generated at the WIPP facility. In addition, two areas have been designated as container storage units (S01) in Section XII. One is inside the Waste Handling Building (WHB) and consists of the contact-handled (CH) bay, conveyance loading room, waste hoist entry room, RH bay, cask unloading room, hot cell, transfer cell, and facility cask loading room. This areas will be used for waste receipt, handling, and storage (including storage of derived waste) prior to emplacement in the underground geologic repository. No treatment or disposal will occur in this S01 areas. The capacity of this S01 unit for storage is 87.7 m<sup>3</sup>, based on 40 standard waste boxes or seven-packs of drums on pallets and in the TRUDOCKs, one standard waste box of derived waste, seven RH canisters in the transfer cell, and five RH canisters in the hot cell. The second area is the parking area outside the WHB where the Contact Handled Package Transuranic Package Transporter (TRUPACT-II) trailers and the road cask trailers will be parked awaiting waste handling operations. The capacity of

this unit is 47.1 m<sup>3</sup>. The storage areas are shown in Appendix O3 as Figures O3-2, O3-3, and O3-4.

**Item 5**

**Use of radiography fro Newly Generated Waste**

## **Acronyms and Abbreviations**

AK	Acceptable Knowledge
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CH	Contact Handled
DOE	Department of Energy
EPA	United States Environmental Protection Agency
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PMR	Permit Modification Request
RCRA	Resource Conservation and Recovery Act
SVOC	Semi-Volatile Organic Compound
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
TRU	Transuranic
TSDF	Treatment, Storage and Disposal Facility
VE	Visual Examination
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WHB	Waste Handling Building
WIPP	Waste Isolation Pilot Plant
WTS	Westinghouse TRU Solutions

## Overview of the Permit Modification Request

This document contains a Class 2 Permit Modification Request (**PMR**) for the Hazardous Waste Facility Permit (**HWFP**) for the Waste Isolation Pilot Plant (**WIPP**), Permit Number NM4890139088-TSDF hereinafter referred to as the WIPP HWFP.

This PMR is being submitted by the U.S. Department of Energy (**DOE**), Carlsbad Field Office (**CBFO**) and Westinghouse TRU Solutions LLC (**WTS**), collectively referred to as the Permittee, in accordance with the WIPP HWFP, Condition I.B.1 (20.4.1.900 New Mexico Administrative Code (**NMAC**) (incorporating 40 Code of Federal Regulations (**CFR**) §270.42(b)). The modification will provide options for waste analysis activities being conducted at generator/storage sites that send waste for management and disposal at WIPP. The PMR allows the use of the radiography for newly generated wastes. These changes do not reduce the ability of the Permittee to provide continued protection to human health or the environment.

The requested modification to the WIPP HWFP and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP HWFP has been identified using a double underline and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP HWFP requirement, Permit Condition I.B.1 for submission of this Class 2 PMR.

**1. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)) requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

The proposed modification will allow generator/storage sites throughout the DOE complex more flexibility in selecting the most efficient approach to performing some waste analysis tasks. The exact changes to WIPP HWFP sections are provided in Item 1, which is summarized as follows:

The WIPP HWFP establishes different waste characterization requirements for newly generated waste and retrievably stored waste that must be implemented by the generator/storage sites. When generator/storage sites initially package waste or when retrievably stored waste must be repackaged, generator/storage sites are required by the WIPP HWFP to use the Visual Examination (**VE**) Technique, also referred to in the WIPP HWFP as Visual Verification of Acceptable Knowledge (**AK**). Generator/storage sites have identified circumstances when post-packaging confirmation of AK using radiography instead of verifying AK at the time of packaging is more efficient. An example of this would be when there are numerous locations where small quantities of TRU waste are being newly generated, requiring a large number of VE personnel. However, the language in the WIPP HWFP does not clearly allow this option. This modification will allow generator/storage sites to perform either Visual Verification or radiography to confirm AK. Using radiography to confirm AK generally results in greater waste analysis activity than the VE Technique. This is because all containers will be radiographed with a statistically selected portion of those containers being subjected to VE as a QC check. Table 1 in Attachment A lists the sections of the WIPP HWFP affected by this change.

**2. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)) requires the applicant to identify that the modification is a Class 2 modification.**

The proposed modification is classified as a Class 2 permit modification because it is considered an “other change to a Waste Analysis Plan” (per 20.4.1.900 NMAC incorporating 40 CFR §270.42 Appendix I (B.1.d)).

The option to use radiography to confirm acceptable knowledge for newly generated waste is a straightforward change which actually results in an increase in waste analysis activities under these circumstances when performing visual verification is not feasible or practical. This is because all containers will be radiographed with a statistically selected portion of those containers being subjected to VE as a QC check.

**3. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)) requires the applicant to explain why the modification is needed.**

The WIPP HWFP requires that all waste undergo confirmation of AK using either VE or radiography. However, the newly generated waste characterization requirements in Attachment B, Section B-3d(1) only references the use of VE during packaging. This modification is needed to allow retrievably stored radiography requirements to be applied to newly generated waste streams, providing the generator/storage sites flexibility in managing their waste characterization and confirmation programs.

**4. 20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the WIPP HWFP that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000, incorporating the CFR, Title 40 (40 CFR Parts 264 and 270). 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. 40 CFR §270.23 is applicable to the WIPP Hazardous Waste Disposal Units (**HWDUs**). This modification does not impact the conditions associated with the HWDUs.

**5. 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this permit modification request contains the signed certification statement in accordance with Module I.F of the WIPP HWFP.

## Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A		✓
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B	✓	
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment B	✓	
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D		✓
	§264.174	Container inspections	Attachment D		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		
§270.14(b)(7)	Part 264 Subpart D	Contingency plan requirements	Attachment F		✓
	§264.51	Contingency plan design and implementation	Attachment F		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F		✓
	§264.53	Contingency plan copies	Attachment F		✓
	§264.54	Contingency plan amendment	Attachment F		✓
	§264.55	Emergency coordinator	Attachment F		✓
	§264.56	Emergency procedures	Attachment F		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		✓
§270.14(b)(8)(i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E		✓
§270.14(b)(8)(ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E		✓
§270.14(b)(8)(iii)		Prevention of contamination of water supplies	Attachment E		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(8)(iv)		Mitigation of effects of equipment failure and power outages	Attachment E		✓
§270.14(b)(8)(v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		✓
§270.14(b)(8)(vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
	Part 264 Subpart C	Preparedness and Prevention	Attachment E		✓
	§264.31	Design and operation of facility	Attachment E		✓
	§264.32	Required equipment	Attachment E Attachment F		✓
	§264.33	Testing and maintenance of equipment	Attachment D		✓
	§264.34	Access to communication/alarm system	Attachment E		✓
	§264.35	Required aisle space	Attachment E		✓
	§264.37	Arrangements with local authorities	Attachment F		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		✓
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G		✓
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b)(11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Attachment H		✓
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		✓
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		✓



Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment I		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment I		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment I		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		✓
§270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
§270.23	Part 264 Subpart X	Miscellaneous units	Attachment M2		✓
§270.23(a)(1)	§264.601	Detailed unit description	Attachment M2		✓
§270.23(a)(2)	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment D Attachment M2 Attachment N		✓
§270.23(a)(3)	§264.603	Post-closure care	Attachment J Attachment J1		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		✓
	Part 264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B		✓

## Item 5

### Use of Radiography for Newly Generated Waste

#### Description:

Allow the use of radiography techniques to confirm the acceptable knowledge associated with newly-generated waste.

#### Basis:

The WIPP HWFP establishes different waste characterization requirements for newly generated and retrievably stored waste. When waste is initially packaged or when retrievably stored waste must be repackaged, generator/storage sites are required by the WIPP HWFP to use the VE Technique, also referred to in the WIPP HWFP as Visual Verification of AK. Generator/storage sites have identified circumstances when it is more appropriate to do post-packaging confirmation of AK using radiography instead of verifying AK at the time of packaging. However, the language in the WIPP HWFP does not appear to allow this option. This modification will allow either Visual Verification or radiography to be used to confirm AK.

Under this modification, generators are still required to document the contents of a container of waste as it is being filled. This is an important aspect of the AK generation process. However, if this modification is approved, the AK developed during waste generation and repackaging will be confirmed either through a second operator visually confirming the results of this first operator (as currently required by the WIPP HWFP) or by post-packaging radiography (as currently required for retrievably stored waste).

#### Discussion:

The WIPP HWFP requires that all waste undergo confirmation of AK using either VE or radiography. However, the newly generated waste characterization requirements in Attachment B, Section B-3d(1) only reference the use of VE during packaging. The relevant text from the WIPP HWFP is as follows:

#### *B-3d(1) Newly Generated Waste*

*The RCRA-regulated constituents in newly generated wastes **will be documented and verified at the time of generation** based on acceptable knowledge for the waste stream. Newly generated TRU mixed waste characterization will begin with verification that processes generating the waste have operated within established written procedures. Waste containers are delineated into waste streams using acceptable knowledge. Verification that the physical form of the waste (Summary Category Group) corresponds to the physical form of the assigned waste **stream is accomplished during packaging (using the VE technique)**. This process is different than the process described in Attachment B1-3b(3) and consists of the operator confirming that the waste is assigned to a waste stream that has the correct Summary Category Group for the waste being packaged. If a confirmation cannot be made, corrective actions will be taken as specified in Permit Attachment B3. Instead of using a video/audio tape as required with VE in support of radiography in Attachment B1-3b(3), the VE technique for newly generated waste (or repackaged retrievably stored waste) uses a second operator, who*

*is equally trained to the requirements stipulated in Permit Attachment B1, to provide additional verification by reviewing the contents of the waste container to ensure correct reporting. If the second operator cannot provide concurrence, corrective actions will be taken as specified in Permit Attachment B3. The subsequent waste characterization activities depend on the assigned Summary Category Group, since waste within the Homogeneous Solids and Soils/Gravel Summary Category Groups will be characterized using different techniques than the waste in the Debris Waste Summary Category Group. (Emphasis added)*

Conducting VE during packaging to confirm AK was included in the permit application and in the WIPP HWFP as a means of reducing waste confirmation activities by requiring that the needed AK information is collected **and confirmed** as the container is filled. If a generator does this in accordance with the WIPP HWFP, subsequent radiography or visual examination is not required.

Generator/storage sites have identified circumstances when it is difficult to implement the VE Technique at the time of packaging. In these cases, the generator would prefer to perform radiography of the waste after it is packaged to confirm the AK. For example, sites that have ongoing waste generation activities in multiple locations have indicated that there are some cases where it is not logistically or economically feasible to provide sufficient trained personnel at each waste production area to collect and verify the permit required information during packaging of newly-generated waste. In such cases, performing the confirmation activity at a single waste management facility has less adverse impact on the production activities at the generator's facility. Waste generators will still be required to collect required AK information and to document compliance with procedures that assure proper waste generation (e.g., administrative controls and procedures that assure no prohibited items are in the waste). The collection of AK will remain the same under the proposed revision, only the confirmation will change from the VE Technique at the time of packaging to either the VE Technique at the time of packaging or radiography. Applying the radiography method as specified for retrievably stored waste in the WIPP HWFP results in the same information regarding the waste as performing the VE Technique during packaging of newly generated waste. The information collected during these two methods is shown as part of the testing batch requirements in Attachment B3, Table B3-11. This table shows that the two methods result in essentially the same information and records being collected. This is because the VE Technique used during packaging must be conducted with 2 operators and a videotape is not required.

Implementing the modification to allow retrievably stored radiography requirements to be applied to newly generated waste streams provides the generator/storage sites flexibility in managing their waste characterization and confirmation programs. This generates the information necessary to comply with the WIPP HWFP, and uses a method that is already accepted under the WIPP HWFP for retrievably stored waste. The modification allows generator/storage sites to combine techniques on a waste stream or waste stream lot, as long as 100% verification of AK is achieved.

## Proposed Revised Permit Text:

### a. 1. Introduction and Attachment Highlights

Some TRU mixed waste is retrievably stored at the DOE generator/storage sites. Additional TRU mixed waste will be generated and packaged into containers at these generator/storage sites in the future. TRU mixed waste will be retrieved from storage areas at a DOE generator/storage site. Retrievably stored waste is defined as TRU mixed waste generated after 1970 and before NMED notifies the Permittees, by approval of the final audit report, that the characterization requirements of the WAP at a generator/storage site have been implemented. Newly generated waste is defined as TRU mixed waste generated after NMED approves the final audit report for a generator/storage site. Retrievably stored TRU mixed waste will be characterized on an ongoing basis, as the waste is retrieved. Acceptable knowledge (AK) information for newly ~~Newly~~ generated TRU mixed waste shall be ~~characterized~~ collected as it is generated. Waste characterization requirements for retrievably stored and newly generated TRU mixed wastes differ, as discussed in Sections B-3d(1) and B-3d(2).

#### **Rationale for this change:**

**This change preserves the requirement that AK collected at the time the waste is generated as is currently required by the permit. However, the permit also includes visual verification as part of characterization at the time of collection. This change is necessary so that the generator/storage site has the option to perform visual verification of AK or use radiography as proposed by the modification request.**

### a. 2. B-3d Characterization Techniques and Frequency for Newly Generated and Retrievably Stored Waste

Generator/storage sites will use acceptable knowledge to delineate all TRU mixed waste containers into waste streams for the purposes of grouping waste for further characterization. The analyses performed will not differ based on the waste stream, only on the physical form of the waste (i.e., heterogenous debris waste cannot be sampled for totals analyses). Both retrievably stored and newly generated wastes will be delineated in this fashion, though the types of acceptable knowledge used may differ. Section B-3b discusses the use of acceptable knowledge, sampling, and analysis in more detail. Acceptable knowledge is discussed more completely in Permit Attachment B4. Every waste stream will be assigned hazardous waste codes based upon acceptable knowledge, and the Permittees will confirm these designations using

headspace gas (all Summary Category Groups) and solid sampling and analysis (Summary Category Groups S3000 and S4000 only).

Radiography and/or VE will be used to verify the physical form of retrievably stored TRU mixed waste. For newly generated waste, physical form and prohibited items will either be verified during packaging (using the VE technique) or will be verified after packaging using radiography (or VE in lieu of radiography). Generator/storage sites may use either the VE technique or radiography, separately or together, as long as 100% of the containers undergo confirmation of AK. Radiography and/or VE will also be used in conjunction with acceptable knowledge to characterize heterogeneous debris wastes. Radiography and/or VE, and the associated information compiled from acceptable knowledge (e.g., age of the waste, generating process) will be used to determine the RCRA-regulated constituents present in the waste.

**Rationale for this change:**

**This change is needed to give the generator/storage site the flexibility to use either the VE Technique or Radiography to confirm the AK developed during packaging of newly-generated waste. This change also allows the circumstance when a generator/storage site performs part of the AK confirmation process using the VE Technique and part using radiography.**

**a. 3. B-3d(1) Newly Generated Waste**

The RCRA-regulated constituents in newly generated wastes will be documented ~~and verified~~ at the time of generation based on acceptable knowledge for the waste stream. Newly generated TRU mixed waste characterization will begin with verification that processes generating the waste have operated within established written procedures. Waste containers will then be delineated into waste streams using acceptable knowledge. Verification that the physical form of the waste (Summary Category Group) corresponds to the physical form of the assigned waste stream is accomplished either during packaging (using the VE technique) or by performing radiography as specified in Attachment B1-3 for retrievably stored waste. Generator/storage sites may use either the VE technique or radiography, separately or together, as long as 100% of the containers undergo confirmation of AK. ~~If the VE technique is used, it This process is~~ different than the VE process described in Attachment B1-3b(3) and consists of the operator confirming that the waste is assigned to a waste stream that has the correct Summary Category Group for the waste being packaged. If a confirmation cannot be made, corrective actions will be taken as specified in Permit Attachment B3. Instead of

using a video/audio tape as required with VE in support of radiography in Attachment B1-3b(3), the VE technique for newly generated waste (or repackaged retrievably stored waste) uses a second operator, who is equally trained to the requirements stipulated in Permit Attachment B1, to provide additional verification by reviewing the contents of the waste container to ensure correct reporting. If the second operator cannot provide concurrence, corrective actions will be taken as specified in Permit Attachment B3. The subsequent waste characterization activities depend on the assigned Summary Category Group, since waste within the Homogeneous Solids and Soils/Gravel Summary Category Groups will be characterized using different techniques than the waste in the Debris Waste Summary Category Group.

**Rationale for this change:**

**This change is needed to allow the generator/storage site to implement this proposed modification by allowing the option to select radiography as the verification method instead of the VE technique. This change also allows the circumstance when a generator/storage site performs part of the AK confirmation process using the VE Technique and part using radiography.**



a. 4. Table B-6

**TABLE B-6**  
**SUMMARY OF PARAMETERS, CHARACTERIZATION METHODS, AND RATIONALE**  
**FOR CH TRANSURANIC MIXED WASTE (STORED WASTE)**

Waste Matrix Code Summary Categories	Waste Matrix Code Groups	Characterization Parameter	Method	Rationale
S3000-Homogeneous Solids  S4000-Soil/Gravel	<ul style="list-style-type: none"> <li>Solidified inorganics</li> <li>Salt waste</li> <li>Solidified organics</li> <li>Contaminated soil/debris</li> </ul>	Physical waste form	100% radiography or visual examination	<ul style="list-style-type: none"> <li>Verify waste matrix</li> <li>Demonstrate compliance with waste acceptance criteria (e.g., no free liquids, no incompatible wastes, no compressed gases)</li> </ul>
		Headspace gases <ul style="list-style-type: none"> <li>Gas volatile organic compounds (VOC)</li> </ul>	100% gas sampling and analysis or statistical sampling <sup>a,b</sup> (see Table B-3)	<ul style="list-style-type: none"> <li>Quantify concentration of flammable VOCs</li> <li>Determine potential flammability of transuranic (TRU) mixed waste headspace gases</li> <li>Quantify concentrations of VOC constituents in headspace of containers</li> <li>Ensure that environmental performance standards are not exceeded</li> </ul>
		Hazardous constituents <ul style="list-style-type: none"> <li>TCLP/total metals</li> <li>TCLP/total VOCs</li> <li>TCLP/total semi-VOCs</li> </ul>	Statistical sampling <sup>b</sup> (see Tables B-4 and B-5)	<ul style="list-style-type: none"> <li>Determine characteristic metals and organics</li> <li>Determine total quantity of metals, VOCs, and semi-VOCs</li> </ul>

**TABLE B-6 (CONTINUED)**  
**SUMMARY OF PARAMETERS, CHARACTERIZATION METHODS, AND RATIONALE**  
**FOR CH TRANSURANIC MIXED WASTE (STORED WASTE)**

Waste Matrix Code Summary Categories	Waste Matrix Code Groups	Characterization Parameter	Method	Rationale
S5000–Debris Waste	<ul style="list-style-type: none"> <li>Uncategorized metal (metal waste other than lead/cadmium)</li> <li>Lead/cadmium waste</li> <li>Inorganic nonmetal waste</li> <li>Combustible waste</li> <li>Graphite waste</li> <li>Heterogeneous waste</li> <li>Composite filter waste</li> </ul>	Physical waste form	100% Radiography Visual examination (statistical sample) <sup>b</sup> or visual examination	<ul style="list-style-type: none"> <li>Verify waste matrix</li> <li>Demonstrate compliance with waste acceptance (e.g., no free liquids, no incompatible wastes, no compressed gases)</li> </ul>
		Headspace gases <ul style="list-style-type: none"> <li>Gas VOCs</li> </ul>	100% gas sampling and analysis or statistical sampling <sup>a,b</sup> (see Table B-3)	<ul style="list-style-type: none"> <li>Quantify concentration of flammable VOCs</li> <li>Determine potential flammability of TRU mixed waste headspace gases</li> <li>Quantify concentrations of VOC constituents in headspace of containers</li> <li>Ensure that environmental performance standards are not exceeded</li> <li>Verify acceptable knowledge</li> </ul>
		Hazardous constituents <ul style="list-style-type: none"> <li>TCLP/total metals</li> <li>TCLP/total VOCs</li> <li>TCLP/total semi-VOCs</li> </ul>	Acceptable knowledge	<ul style="list-style-type: none"> <li>Determine characteristic metals and organics</li> <li>Determine total quantity of metals, VOCs, and semi-VOCs</li> </ul>

**TABLE B-6 (CONTINUED)**  
**SUMMARY OF PARAMETERS, CHARACTERIZATION METHODS, AND RATIONALE**  
**FOR CH TRANSURANIC MIXED WASTE (NEWLY GENERATED WASTE)**

Waste Matrix Code Summary Categories	Waste Matrix Code Groups	Characterization Parameter	Method	Rationale
S3000-Homogeneous Solids  S4000-Soil/Gravel	<ul style="list-style-type: none"> <li>Solidified inorganics</li> <li>Salt waste</li> <li>Solidified organics</li> <li>Contaminated soil/debris</li> </ul>	Physical waste form	Documentation and verification <sup>c</sup> or <u>Radiography</u> . <u>Applies to 100% of containers</u>	<ul style="list-style-type: none"> <li>Verify waste matrix</li> <li>Demonstrate compliance with waste acceptance criteria (e.g., no free liquids, no incompatible wastes, no compressed gases)</li> </ul>
		Headspace gases <ul style="list-style-type: none"> <li>Gas VOCs (VOCs)</li> </ul>	100% gas sampling and analysis or statistical sampling <sup>a,b</sup> (see Table B-3)	<ul style="list-style-type: none"> <li>Quantify concentration of flammable VOCs</li> <li>Determine potential flammability of TRU mixed waste headspace gases</li> <li>Quantify concentrations of VOC constituents in headspace of containers</li> <li>Ensure that environmental performance standards are not exceeded</li> </ul>
		Hazardous constituents <ul style="list-style-type: none"> <li>TCLP/total metals</li> <li>TCLP/total VOCs</li> <li>TCLP/total semi-VOCs</li> </ul>	Statistical sampling <sup>b</sup> (see Tables B-4 and B-5)	<ul style="list-style-type: none"> <li>Determine characteristic metals and organics</li> <li>Determine total quantity of metals, VOCs, and semi-VOCs</li> </ul>

**TABLE B-6 (CONTINUED)**  
**SUMMARY OF PARAMETERS, CHARACTERIZATION METHODS, AND RATIONALE**  
**FOR CH TRANSURANIC MIXED WASTE (NEWLY GENERATED WASTE)**

Waste Matrix Code Summary Categories	Waste Matrix Code Groups	Characterization Parameter	Method	Rationale
S5000–Debris Waste	<ul style="list-style-type: none"> <li>Uncategorized metal (metal waste other than lead/cadmium)</li> <li>Lead/cadmium waste</li> <li>Inorganic nonmetal waste</li> <li>Combustible waste</li> <li>Graphite waste</li> <li>Heterogeneous waste</li> <li>Composite filter waste</li> </ul>	Physical waste form	Documentation and verification <sup>c</sup> <u>or Radiography.</u> <u>Applies to 100% of containers</u>	<ul style="list-style-type: none"> <li>Verify waste matrix</li> <li>Demonstrate compliance with waste acceptance (e.g., no free liquids, no incompatible wastes, no compressed gases)</li> </ul>
		Headspace gases <ul style="list-style-type: none"> <li>Gas VOCs</li> </ul>	100% gas sampling and analysis or statistical sampling <sup>a,b</sup> (see Table B-3)	<ul style="list-style-type: none"> <li>Quantify concentration of flammable VOCs</li> <li>Determine potential flammability of TRU mixed waste headspace gases</li> <li>Quantify concentrations of VOC constituents in headspace of containers</li> <li>Ensure that environmental performance standards are not exceeded</li> <li>Verify acceptable knowledge</li> </ul>
		Hazardous constituents <ul style="list-style-type: none"> <li>TCLP/total metals</li> <li>TCLP/total VOCs</li> <li>TCLP/total semi-VOCs</li> </ul>	Acceptable knowledge	<ul style="list-style-type: none"> <li>Determine characteristic metals and organics</li> <li>Determine total quantity of metals, VOCs, and semi-VOCs</li> </ul>

<sup>a</sup> Applies to certain waste streams that meet the conditions in Section B-3a(1)

<sup>b</sup> Number determined as specified in Permit Attachment B2.

<sup>c</sup> See discussion in Permit Attachment B4.

**Rationale for this Change:**

**This change updates Table B-6 to allow the flexibility to use radiography or the VE technique for a newly generated waste.**

a. 5. Figure B-2

See Attachment B for the revised Figure B-2

**Rationale for this Change:**

**This change updates Figure B-2 to allow the flexibility to use radiography or the VE technique for a newly generated waste.**

b. 1. B4-2b Required TRU Mixed Waste Stream Information

The Permittees may use acceptable knowledge to delineate site-specific waste streams. For each TRU mixed waste stream, the Permittees shall require sites to compile all process information and data that support the acceptable knowledge used to characterize that waste stream. The type and quantity of supporting documentation will vary by waste stream, depending on the process generating the waste and site-specific requirements imposed by the Permittees. At a minimum, the waste process information shall include the following written information:

- Area(s) and/or building(s) from which the waste stream was or is generated
- Waste stream volume and time period of generation (e.g., 100 standard waste boxes of retrievable stored waste generated from June 1977 through December 1977)
- Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes)
- Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific building to a size reduction facility to a container storage area). In the case of research/development, analytical laboratory waste, or other similar processes where process flow diagrams cannot be created, a description of the waste generating processes, rather than a formal process flow diagram, may be included if this modification is justified and the justification is placed in the auditable record
- Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemicals handled during glove box operations, if applicable)

The acceptable knowledge written record shall include a summary that identifies all

sources of waste characterization information used to delineate the waste stream. The basis and rationale for delineating each waste stream, based on the parameters of interest, shall be clearly summarized and traceable to referenced documents. Assumptions made in delineating each waste stream also shall be identified and justified. If discrepancies exist between required information, then sites shall apply all hazardous waste codes indicated by the information to the subject waste stream unless the sites choose to justify an alternative assignment and document the justification in the auditable record. The Permittees shall obtain from each site, at a minimum, procedures that comply with the following acceptable knowledge requirements:

- Procedures for identifying and assigning the physical waste form of the waste
- Procedures for delineating waste streams and assigning Waste Matrix Codes
- Procedures for resolving inconsistencies in acceptable knowledge documentation
- Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis
- Procedures describing management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B) are documented and managed
- Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container of waste (e.g., liquids exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes)
- Procedures to document how changes to Waste Matrix Codes, waste stream assignment, and associated EPA hazardous waste numbers based on material composition are documented for any waste
- Procedures for newly generated waste shall describe how acceptable knowledge is confirmed using either the visual examination technique or radiography (or VE in lieu of radiography).

**Rationale for this Change:**

**This change Section B4-2b is needed to allow the flexibility to use radiography or the VE technique**

for a newly generated waste.

b. 2. B4-3d Requirements for Confirmation of Acceptable Knowledge Information

Acceptable knowledge includes information regarding the physical form of the waste, the base materials composing the waste, and the process that generates the waste. Waste characterization (i.e., radiography or visual examination, headspace-gas sampling and analysis, and homogeneous waste sampling and analysis) will be used to confirm acceptable knowledge information. Figure B4-2 illustrates the process the Permittees shall require sites to use to confirm acceptable knowledge.

Acceptable knowledge characterization results shall be confirmed for both retrievably stored and newly generated waste. All retrievably stored waste shall be characterized using radiography or visual examination to confirm the Waste Matrix Code and waste stream and certify compliance with the WAP (Permit Attachment B). If a site must repackage its retrievably stored waste, either the visual examination technique prior to or during waste packaging or radiography (or VE in lieu of radiography) after waste packaging shall be used to confirm acceptable knowledge information ~~rather than radiography~~.

For newly generated wastes, sites that elect to confirm AK during packaging of newly generated waste shall have written procedures to document the confirmation of acceptable knowledge information with the visual examination technique prior to or during waste packaging. The following minimum requirements shall be addressed in site-specific procedures:

- scope (i.e., waste streams) and purpose;
- responsible organization(s);
- administrative process controls;
- material inputs to process;
- process controls and range of operation that affect final hazardous waste characterization;
- rate and quantity of the hazardous waste generated;

- list of applicable operating procedures relevant to the hazardous waste characterization;
- process knowledge verification sampling (i.e., headspace-gas sampling and/or homogeneous waste annual sampling); and
- reporting and records management.

**Rationale for this Change:**

**This change Section B4-3d is needed to allow the flexibility to use radiography or the VE technique for a newly generated waste.**

**c. 1. Table B6-1**

27	<p>Are procedures in place to ensure that the following characterization activities shall occur for newly generated wastes:</p> <ul style="list-style-type: none"> <li>• Acceptable Knowledge for all wastes, with confirmatory: <ul style="list-style-type: none"> <li>- <u>Either Visual examination during packaging or radiography (or VE in lieu of radiography) after packaging</u> for all waste containers</li> <li>- Headspace gas analysis for all waste containers</li> <li>- Total VOC, SVOC, and Metals analyses for a selected number of homogeneous solids and soil/gravel waste containers for control charting purposes (annually thereafter), as specified in Attachment B2</li> <li>- Evaluation of any TICs found in headspace gas and totals analyses</li> </ul> </li> </ul> <p>(Section B-3d(1))</p>
----	--

**Rationale for this Change:**

**This change to the B6 checklist is to assure it is consistent with the revised text elsewhere in the Waste Analysis Plan.**



c. 2. Table B6-1

29	<p>Are procedures in place to ensure that the following characterization activities shall occur for repackaged waste:</p> <ul style="list-style-type: none"> <li>• Acceptable Knowledge, with confirmatory: <ul style="list-style-type: none"> <li>- <u>Either <del>Visual</del> visual examination during repackaging or radiography (or VE in lieu of radiography) after repackaging</u> for all waste containers</li> <li>- Headspace gas analysis for all waste containers</li> <li>- Total VOC, SVOC, and Metals analyses following either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements</li> <li>- Evaluation of any TICs found in headspace gas and totals analyses</li> </ul> </li> </ul> <p>(Section B-3d, B-3d(1))</p>
----	---

**Rationale for this Change:**

**This change to the B6 checklist is to assure it is consistent with the revised text elsewhere in the Waste Analysis Plan.**

c. 3. Table B6-3

144	<p>Have the following procedures been prepared?:</p> <ul style="list-style-type: none"> <li>• Procedures for identifying and assigning the physical waste form</li> <li>• Procedures for delineating waste streams and assigning Waste Matrix Code</li> <li>• Procedures for resolving inconsistencies in acceptable knowledge documentation</li> <li>• Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis</li> <li>• Procedures describing management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B) are documented and managed</li> <li>• Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container of waste (corrosives, ignitables, reactives, and incompatible wastes)</li> <li>• Procedures to document how changes to Waste Matrix Codes, waste stream assignment, and associated EPA hazardous waste numbers based on material composition are documented for any waste</li> <li>• Procedures for newly generated waste shall describe how acceptable knowledge is confirmed using <u>either the visual examination technique or radiography (or VE in lieu of radiography)</u></li> </ul> <p>(Section B4-2b)</p>
-----	---

**Rationale for this Change:**

**This change to the B6 checklist is to assure it is consistent with the revised text elsewhere in the Waste Analysis Plan.**

c. 4. Table B6-3

153	Does the generator site have written procedures for newly generated waste to document the confirmation of acceptable knowledge information with <u>either the visual examination technique</u> prior to or during waste packaging <u>or radiography (or VE in lieu of radiography) after waste packaging</u> ? Do these procedures address the required elements in 3.4-3d? (Section B4-3d)
-----	--

**Rationale for this Change:**

**This change to the B6 checklist is to assure it is consistent with the revised text elsewhere in the Waste Analysis Plan.**

**Attachment B**

**Redline/Strikeout Version of Permit Attachment O, Part A Application**

(Note: A signed copy of the modified Part A Permit Application will be provided to NMED following approval of the PMR.)

EPA ID Number (Enter from page 1)												Secondary ID Number (Enter from page 1)											
N	M	4	8	9	0	1	3	9	0	8	8												
XIV. Description of Hazardous Wastes (Continued; use additional sheets as necessary)																							
Line Number	A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES																
							(1) PROCESS CODES (Enter code)										(2) PROCESS DESCRIPTION (If a code is not entered in D(1))						
	1	U	0	0	2	344	M	X	0	4	S	0	1	S	0	1							
	2	U	0	1	9	344	M	X	0	4	S	0	1	S	0	1							
	3	U	0	3	7	344	M	X	0	4	S	0	1	S	0	1							
	4	U	0	4	3	344	M	X	0	4	S	0	1	S	0	1							
	5	U	0	4	4	344	M	X	0	4	S	0	1	S	0	1							
	6	U	0	5	2	344	M	X	0	4	S	0	1	S	0	1							
	7	U	0	7	0	344	M	X	0	4	S	0	1	S	0	1							
	8	U	0	7	2	344	M	X	0	4	S	0	1	S	0	1							
	9	U	0	7	8	344	M	X	0	4	S	0	1	S	0	1							
1	0	U	0	7	9	344	M	X	0	4	S	0	1	S	0	1							
1	1	U	1	0	5	344	M	X	0	4	S	0	1	S	0	1							
1	2	U	1	2	2	344	M	X	0	4	S	0	1	S	0	1							
1	3	U	1	3	3	344	M	X	0	4	S	0	1	S	0	1							
1	4	U	1	5	1	344	M	X	0	4	S	0	1	S	0	1							
1	5	U	1	5	4	344	M	X	0	4	S	0	1	S	0	1							
1	6	U	1	5	9	344	M	X	0	4	S	0	1	S	0	1							
1	7	U	1	9	6	344	M	X	0	4	S	0	1	S	0	1							
1	8	U	2	0	9	344	M	X	0	4	S	0	1	S	0	1							
1	9	U	2	1	0	344	M	X	0	4	S	0	1	S	0	1							
2	0	U	2	2	0	344	M	X	0	4	S	0	1	S	0	1							
2	1	U	2	2	6	344	M	X	0	4	S	0	1	S	0	1							
2	2	U	2	2	8	344	M	X	0	4	S	0	1	S	0	1							
2	3	U	2	3	9	344	M	X	0	4	S	0	1	S	0	1							
2	4	P	1	2	0	3.3	M	X	0	4	S	0	1	S	0	1							
2	5	D	0	3	3	3.3	M	X	0	4	S	0	1	S	0	1							
2	6	<u>U</u>	<u>1</u>	<u>3</u>	<u>4</u>	<u>344</u>	<u>M</u>	<u>X</u>	<u>0</u>	<u>4</u>	<u>S</u>	<u>0</u>	<u>1</u>	<u>S</u>	<u>0</u>	<u>1</u>							
2	7																						
2	8																						
2	9																						
3	0																						
3	1																						
3	2																						
3	3																						
3	4																						
3	5																						

**Figure G-2**  
**WIPP Traffic Flow Diagram**

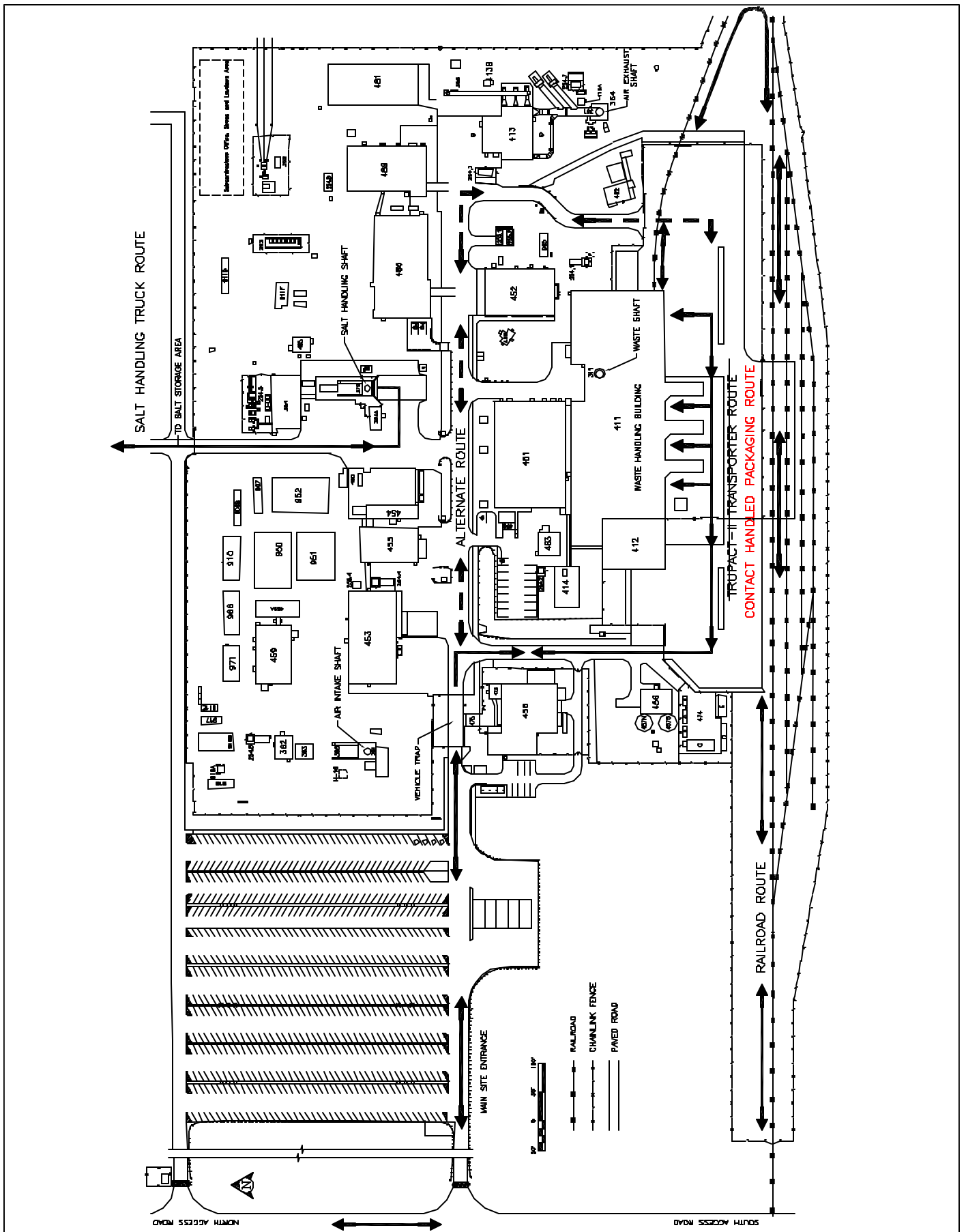


Figure G-2  
WIPP Traffic Flow Diagram



**Figure M1-8a**

**TRUPACT-II Shipping Container for CH Transuranic Mixed Waste (Schematic)**

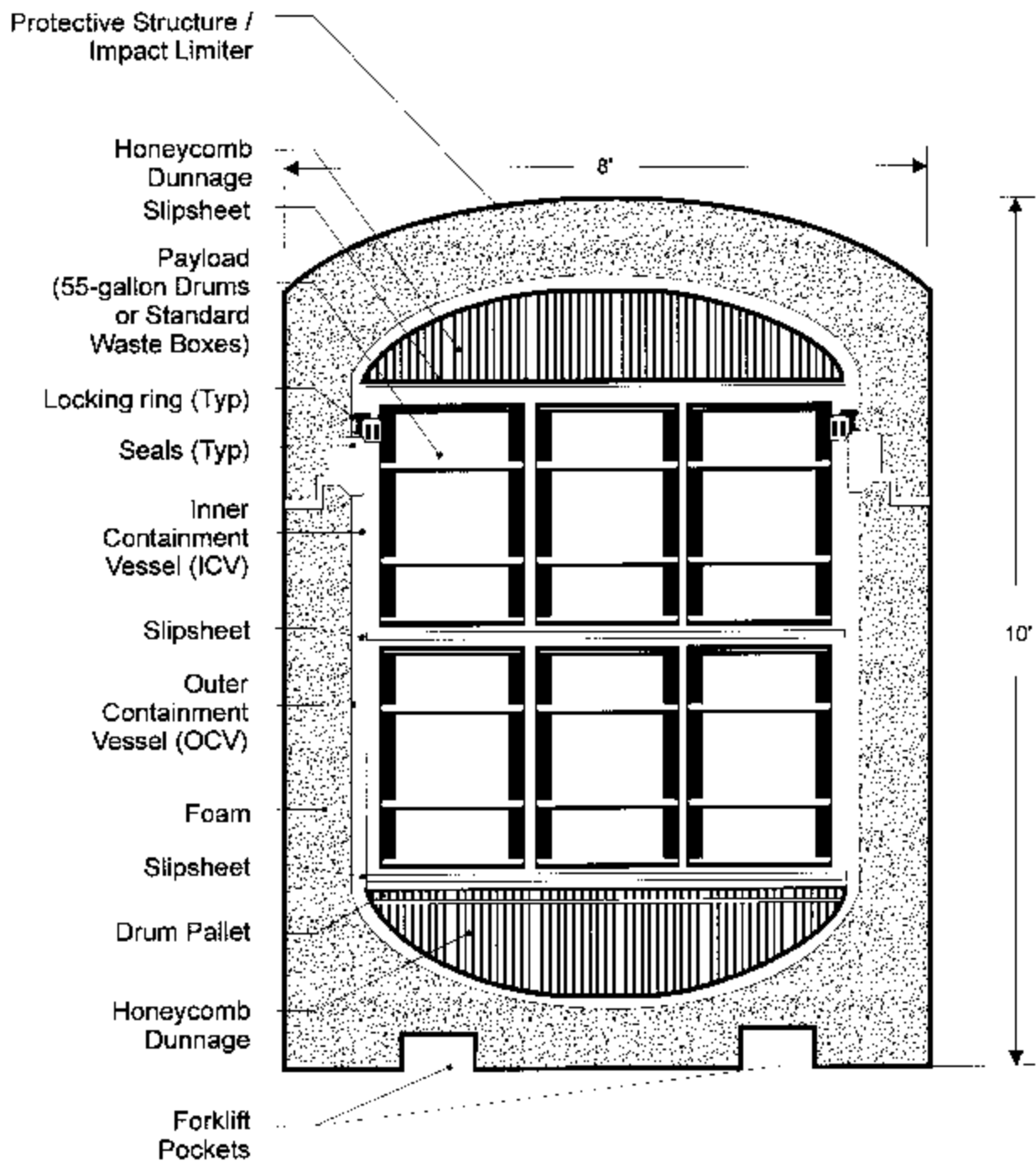


Figure M1-8a  
TRUPACT-II Shipping Container for CH Transuranic Mixed Waste (Schematic)

**Figure M1-8b**

**HalfPACT Shipping Container for CH Transuranic Mixed Waste (Schematic)**

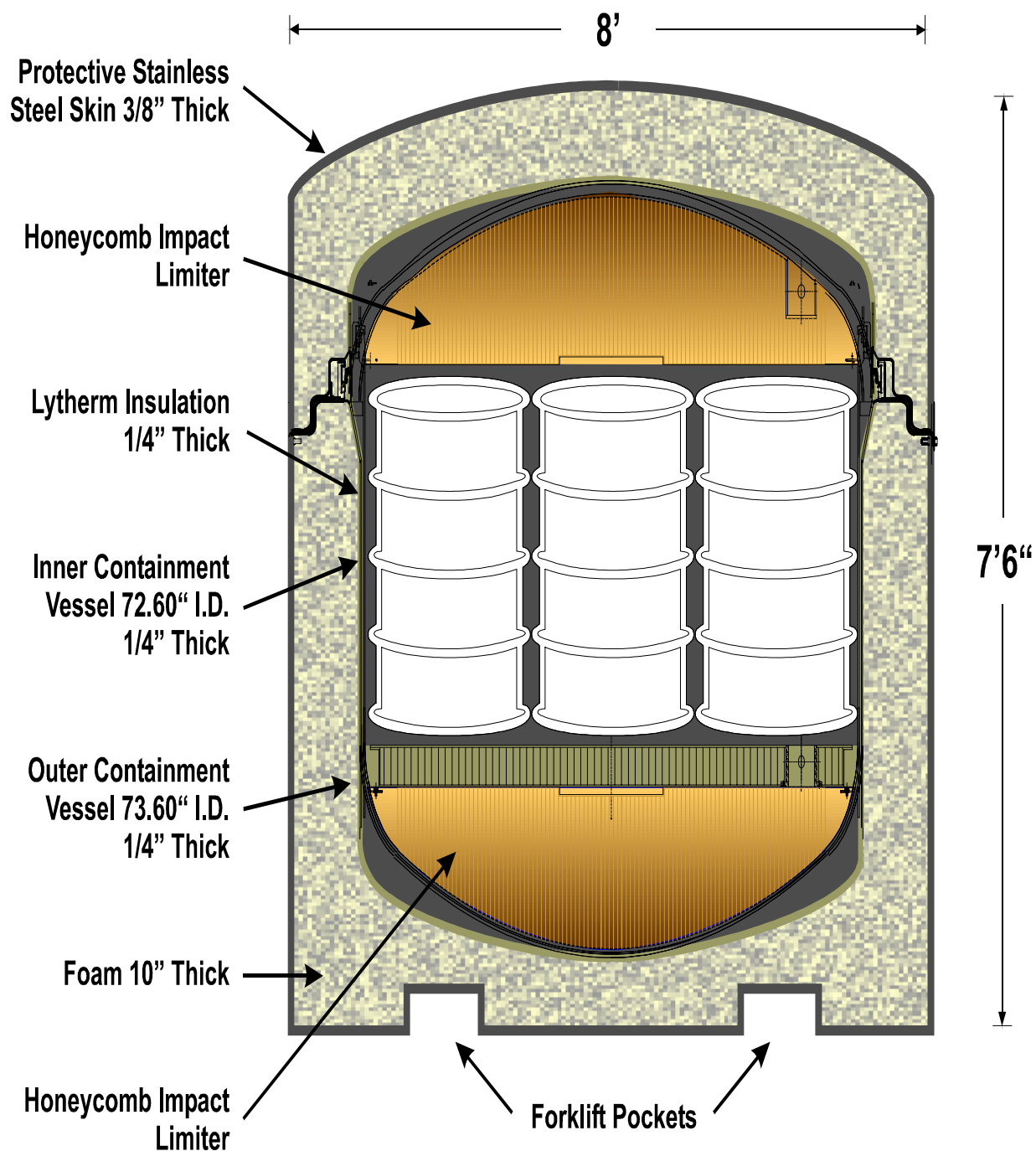


Figure M1-8b  
Typical HalfPACT Shipping Container for CH Transuranic Mixed Waste (Schematic)

**Figure M1-13**

**WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram**

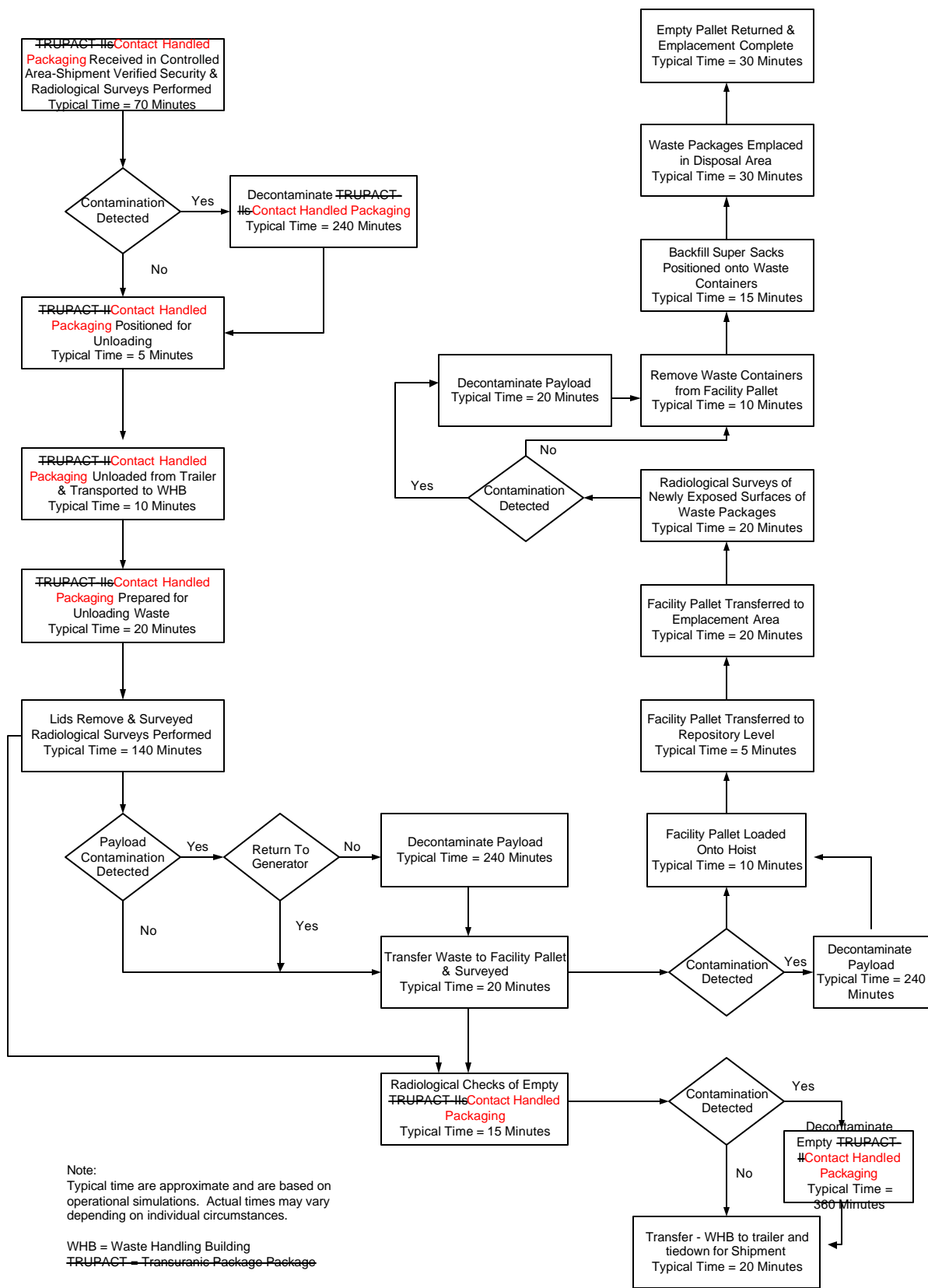
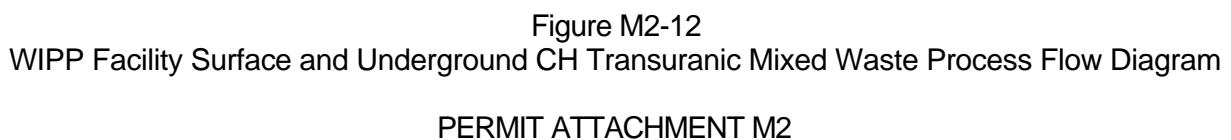


Figure M1-13  
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram  
PERMIT ATTACHMENT M1

**Figure M2-12**

**WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram**



WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram



**Figure B-2**

**Data Collection Design for Characterization of Newly Generated Waste**

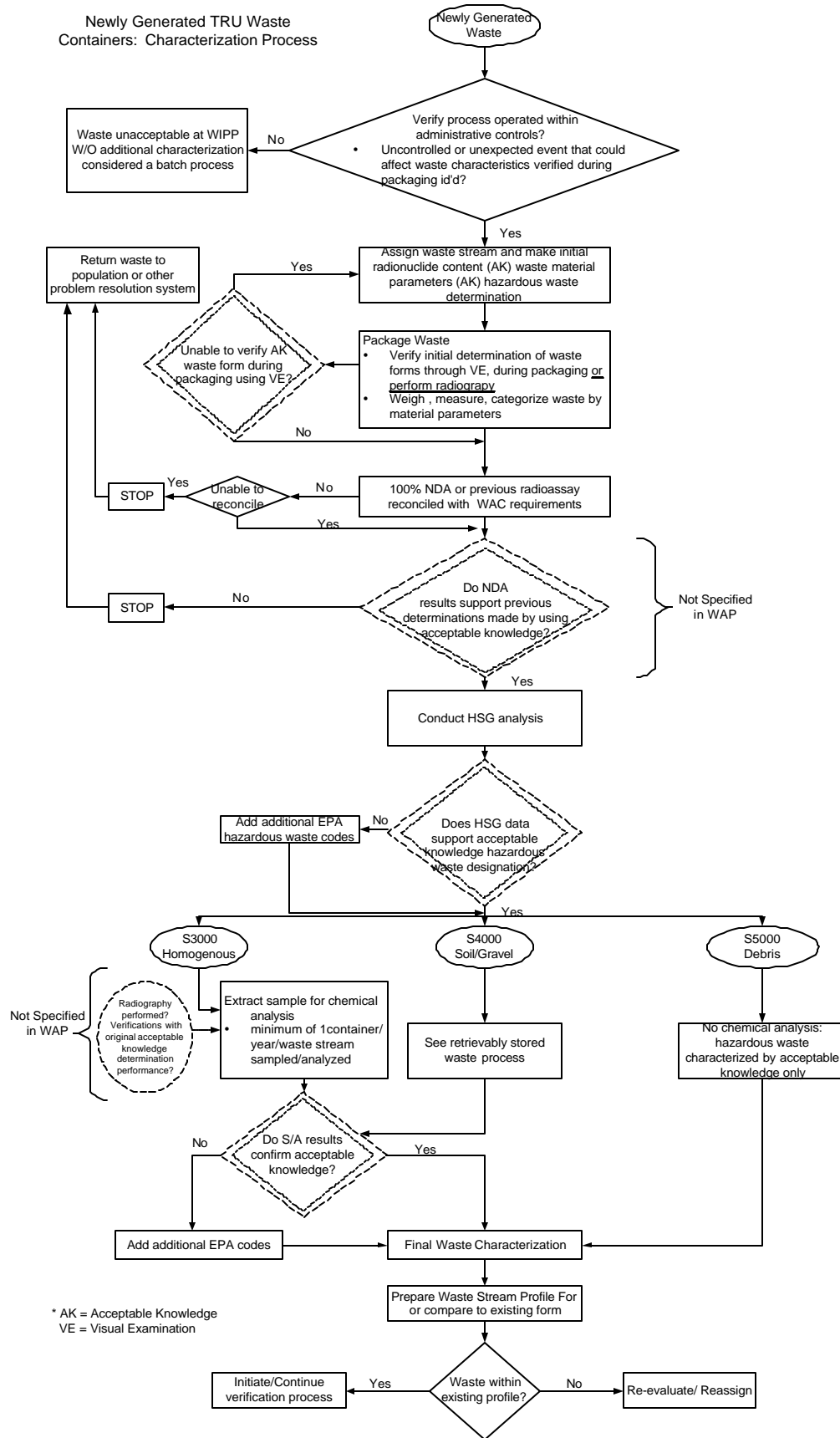


Figure B-2  
Data Collection Design for Characterization of Newly Generated Waste  
PERMIT ATTACHMENT B

**Attachment C**

**Certification of Compliance**



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

November 2, 2000

Mr. Farok Sharif, Manager  
TRU Waste Programs  
Westinghouse Electric Corporation  
Waste Isolation Division  
Box 2078  
Carlsbad, NM 88221

SUBJECT: MODEL HalfPACT WASTE SHIPPING CONTAINER PACKAGE

Dear Mr. Sharif:

As requested by your application dated August 27, 1998, as supplemented, enclosed is Certificate of Compliance No. 9279, Revision No. 0, for the Model No. HalfPACT Waste Shipping Container package. The Certificate of Compliance has been issued to the Department of Energy per your request.

Westinghouse Electric Corporation and the Department of Energy have been registered as users of the package under the general license provisions of 10 CFR 71.12 or 49 CFR 173.471. The approval constitutes authority to use the package for shipment of radioactive material and for the package to be shipped in accordance with the provisions of 49 CFR 173.471.

If you have any questions regarding this certificate, please contact me or David Tiktinsky of my staff at (301)415-8500.

Sincerely,

E. William Brach, Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 71-9279

Enclosures: 1. Certificate of Compliance  
No. 9279, Rev. No. 0  
2. Safety Evaluation Report

cc w/encl: R. Boyle, Department of Transportation  
P. Gregory, Westinghouse  
M. Caviness, Westinghouse  
M. Wangler, Department of Energy

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9279	0	71-9279	USA/9279/B(U)F-85	1 OF	4

**2. PREAMBLE**

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

**3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION**

- a. ISSUED TO (Name and Address)  
Department of Energy  
Washington, DC 20586
- b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION  
Westinghouse Electric Corporation application  
dated August 27, 1998, as supplemented.

**4. CONDITIONS**

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

**5.****(a) Packaging**

- (1) Model No.: HalfPACT Waste Shipping Container
- (2) Description

A stainless steel and polyurethane foam insulated shipping container designed to provide double containment for shipment of contact-handled transuranic waste. The packaging consists of an unvented, 1/4-inch thick stainless steel inner containment vessel (ICV), positioned within an outer containment assembly (OCA) consisting of an unvented 1/4-inch thick stainless steel outer containment vessel (OCV), an approximate 8-inch thick layer of polyurethane foam, a 1/4-inch thick layer of ceramic fiber paper and a 1/4 to 3/8-inch thick outer stainless steel shell. The package is a right circular cylinder with outside dimensions of approximately 94 inches diameter and 70 inches height. The package weighs not more than 18,100 pounds when loaded with the maximum allowable contents of 7,600 pounds.

The OCA has a domed lid which is secured to the OCA body with a locking ring. The OCV containment seal is provided by a butyl rubber O-ring. The OCV is equipped with a seal test port and a vent port.

The ICV is a right circular cylinder with domed ends. The outside dimensions of the ICV are approximately 74 inches diameter and 69 inches height. The ICV lid is secured to the ICV body with a locking ring. The ICV containment seal is provided by a butyl rubber O-ring. The ICV is equipped with a seal test port and vent port. Aluminum spacers are placed in the top and bottom domed ends of the ICV during shipping. The cavity available for the contents is a cylinder of approximately 73 inches diameter and 69 inches height.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1. a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
9279	0	71-9279	USA/9279/B(U)F-85	2 OF	4

**5.(a)(3) Drawings**

The package is constructed and assembled in accordance with Westinghouse Electric Company Drawings 707-SAR sheets 1-12, Revision 2 and 163-001, sheets 1-3, Revision 2.

**(b) Contents****(1) Type and form of material**

Byproduct, source, and special nuclear material in the form of dewatered, solid or solidified materials and wastes. Materials must be packaged in one of the following payload containers: a 55-gallon drum, standard waste box (SWB), 85-gallon drum or pipe overpack. The payload containers are described in Appendix 2.1, "Specification of Authorized Payload Containers" of the CH-TRAMPAC, Rev. 0. Explosives, corrosives (pH less than 2 or greater than 12.5), nonradioactive pyrophorics, and compressed gases are prohibited. Within a payload container radioactive pyrophorics must not exceed 1 weight percent by weight and free liquids must not exceed 1 percent by volume. Flammable volatile organic compounds are limited to 500 ppm in the headspace of any payload container.

**(2) Maximum quantity of material per package**

The package contents are limited to 7,600 pounds, including the weight of the payload containers and any other components of the payload assembly. The maximum gross weight for a payload container not to exceed the following:

- (i) 328 pounds per pipe overpack (6 inch)
- (ii) 547 pounds per pipe overpack (12 inch)
- (iii) 1,000 pounds per 55-gallon drum
- (iv) 1,000 pounds per 85-gallon drum
- (v) 4,000 pounds per SWB

Maximum number of payload containers per package and authorized packaging configurations as follows:

- (i) 7 55-gallon drums
- (ii) 1 SWB
- (iii) 1 SWB, containing up to four 55-gallon drums
- (iv) 1 SWB, containing one bin
- (v) 4 85-gallon drums, each overpacking one 55-gallon drum

Fissile material not to exceed the following:

Payload Container Type	Pu-239 Equivalent Per Payload Container	Pu-239 Equivalent Per Package
55-/85-gallon drum	200 grams	325 grams
Pipe overpack	200 grams	1,400 grams
SWB	325 grams	325 grams

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9279	0	71-9279	USA/9279/B(U)F-85	3	OF 4

Pu-239 equivalent must be determined in accordance with Section 3.1, "Nuclear Criticality" in CH-TRAMPAC, Rev. 0

Maximum decay heat per package not to exceed 30 watts. Decay heat per payload container not to exceed the values in Table 5-5 of CH-TRAMPAC, Rev. 0, "List of Approved Shipping Categories, Maximum Allowable Hydrogen Gas Generation Rates, and Maximum Allowable Wattages."

(c) Transport Index for Criticality Control

Minimum transport index to be shown on label for nuclear criticality control: 0.0

6. Physical form, chemical properties, chemical compatibility, configuration of waste containers and contents, isotopic inventory, fissile content, decay heat, weight and center of gravity; and radiation dose rate must be determined and limited in accordance with CH-TRAMPAC, Rev. 0.
7. Each payload container must be assigned to a shipping category in accordance with Section 5.1, "Payload Shipping Category" of CH-TRAMPAC, Rev. 0. Each payload container and payload assembly must not exceed the allowable wattage in accordance with Section 5.2, "Decay Heat," or must be tested for gas generation in accordance with Section 5.5, "Test Category Requirements" of CH-TRAMPAC, Rev. 0.
8. Each payload container must be labeled to indicate its shipping category. Payload containers within a package shall be selected in accordance with Section 6.0, "Payload Assembly Requirements" of CH-TRAMPAC, Rev. 0.
9. Each payload container must be equipped with filtered vents meeting the minimum requirements of Section 2.5, "Specification for Filter Vents" of CH-TRAMPAC, Rev. 0. Drums which were not equipped with filtered vents during storage must be aspirated in accordance with Section 5.4, "Venting and Aspiration" of CH-TRAMPAC, Rev. 0.
10. Only waste defined by an approved content code in CH-TRUCON, Rev. 0 is authorized for transport.

<b>NRC FORM 618</b> (8-2000) 10 CFR 71		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>				
<b>CERTIFICATE OF COMPLIANCE FOR RADIOACTIVE MATERIAL PACKAGES</b>						
1	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9279	0	71-9279	USA/9279/B(U)F-85	4	OF 4

11. In addition to the requirements of Subpart G of 10 CFR Part 71:

- (a) Each package must be prepared for shipment and operated in accordance with the procedures described in Chapter 7.0, "Operating Procedures," of the application, as supplemented.
- (b) Each package must be tested and maintained in accordance with the procedures described in Chapter 8.0, "Acceptance Tests and Maintenance Program," of the application, as supplemented.
- (c) All free standing water must be removed from the inner containment vessel cavity and the outer containment vessel cavity before shipment.

12. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.12.

13. Expiration date: October 31, 2005.

#### REFERENCES

Westinghouse Electric Corporation application dated August 27, 1998.

Supplements dated: July 27 and September 21, 2000.

Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC), Rev. 0, August 1998

CH-TRU Waste Content Codes (CH-TRUCON), Rev. 0, dated August 1998.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



E. William Brach, Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Date: November 2, 2000